217/782-2113

CONSTRUCTION PERMIT - PSD APPROVAL
NSPS EMISSION UNITS

PERMITTEE

City of Springfield
Attn: S. David Farris, CIH, CSP
Environmental Health and Safety Manager
Municipal Center Complex
800 Monroe Street
Springfield, Illinois 62757

Application No.: 04110050 I.D. No.: 167120AAO
Applicant's Designation: BLR4 Date Received: November 18, 2004
Subject: Dallman Unit 4
Date Issued: (DRAFT PERMIT)
Location: City Water Light & Power (CWLP), 3100 Stevenson Drive, Springfield

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission sources and air pollution control equipment consisting of the Dallman Unit 4 project, including a pulverized coal fired boiler with low NO_x combustion technology, selective catalytic reduction system, scrubber, fabric filter and wet electrostatic precipitator, associated material handling equipment, cooling tower and ancillary equipment, as described in the above referenced application. This Permit is granted based upon and subject to the findings and conditions that follow.

In conjunction with this permit, approval is given with respect to the federal regulations for Prevention of Significant Deterioration of Air Quality (PSD) for this project, as described in the application, in that the Illinois Environmental Protection Agency (Illinois EPA) finds that the application fulfills all applicable requirements of 40 CFR 52.21. This approval is issued pursuant to the Clean Air Act, as amended, 42 U.S.C. 7401 et seq., the federal regulations promulgated thereunder at 40 CFR 52.21 for Prevention of Significant Deterioration of Air Quality (PSD), and a Delegation of Authority agreement between the United States Environmental Protection Agency (USEPA) and the Illinois EPA for the administration of the PSD Program. This approval becomes effective in accordance with the provisions of 40 CFR 124.15 and may be appealed in accordance with provisions of 40 CFR 124.19. This approval is based upon the findings that follow. This approval is subject to the following conditions. This approval is also subject to the general requirement that the project be developed and operated consistent with the specifications and data included in the application and any significant departure from the terms expressed in the application, if not otherwise authorized by this permit, must receive prior written authorization from the Illinois EPA.

If you have any questions on this permit, please call Shashi Shah at 217/782-2113 (TDD 217/782-9143).

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:SRS:jar

cc: Region 2
USEPA Region V

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INTRODUCTION: FINDINGS

1a. City Water, Light and Power (CWLP) has requested a permit to construct a new solid fuel fired generating unit, Dallman Unit 4, which would replace two existing coal-fired units, Lakeside Units 7 and 8, at its existing power plant in Springfield. The new boiler would be equipped with low-NO_x combustion technology and selective catalytic reduction (SCR), a fabric filter or "baghouse", wet flue gas desulfurization (WFGD) or "scrubber", and a wet electrostatic precipitator (WESP). Other new emission units associated with the new boiler would include: equipment for handling coal, limestone, ash and gypsum associated with the new boiler; a cooling tower; and other ancillary equipment and operations.

b. The new boiler would have a maximum rated capacity of about 2,440 million Btu/hour and would serve a new steam turbine-generator with a nominal capacity of 250 MW, gross output. The boiler would be fired on coal as its primary fuel, with natural gas used as the startup fuel. The design coal supply for the boiler has 3.55 percent sulfur by weight and 10,200 Btu per pound as received at the plant, for an equivalent nominal sulfur dioxide emission rate of 7.0 lb/million Btu.

2. The CWLP power plant is located in Sangamon County, an area that is currently designated attainment for all criteria pollutants.

3a. This project is subject to PSD for emissions of particulate matter (PM), carbon monoxide (CO), and sulfuric acid mist because the project's potential emissions of these pollutants are greater than the applicable significant emission rates set by the PSD rules. In particular, the project is being permitted for annual emissions of 401 tons, 1,281 tons and 53 tons for PM, CO and sulfuric acid mist, respectively. (See also Attachment 1 and 2.)

b. The project is not subject to PSD for emissions of sulfur dioxide (SO_2) and nitrogen oxides (NO_x) because the net increases in emissions of these pollutants are below the applicable significant emission rates set by the PSD rules. For these pollutants, CWLP has submitted a netting demonstration that addresses the decreases in emissions from the shutdown of the existing Lakeside Units that would occur with this project, as summarized in Attachment 2, Table 2-B. This demonstration shows that while the potential annual emissions of SO_2 from the new boiler would be 2,135 tons, the project would be accompanied by a contemporaneous emissions decrease of 7,741 tons, so that this project would result in a net decrease in annual emissions of at least 5,605 tons. Similarly for NO_x, while the potential annual emissions of the new boiler are 1,070 tons, there will be an accompanying decrease in emissions of 1,262 tons, for a net decrease in annual emissions of at least 152 tons.

c. The proposed project is not subject to PSD for other PSD pollutants that have not been addressed above (VOC, lead, and fluorides) because the potential emissions of other PSD pollutants are below the applicable significant emission rates set by the PSD rules.

4a. After reviewing the materials submitted by CWLP, the Illinois EPA has determined that the project will: (i) comply with applicable Pollution Control Board (Board) emission standards, (ii) comply with applicable federal emission standards, (iii) utilize Best Available Control Technology (BACT) on emissions as required by PSD.

b. The BACT determinations made by the Illinois EPA for the PM, CO and sulfuric acid mist emissions from the project are the control technology determinations for these pollutants contained in the permit conditions for specific emission units. These BACT determinations can only be revised by action under the PSD rules, not simply by future action in Clean Air Act Permit Program (CAAPP) Permits for the source.

5a. The air quality analysis submitted by CWLP and reviewed by the Illinois EPA shows that the proposed project will not cause a violation of the ambient air quality standards for CO and PM_{10}. The air quality analysis also demonstrated compliance with the applicable increments for PM_{10} established under the PSD rules.

b. CWLP has also submitted the additional impact analyses required under the PSD rules, including an analysis of grown that will occur due to the project, an analysis of soil and vegetation air pollution impacts from the project, and visibility impairment analysis. These analyses adequately address the potential for any adverse impacts from the project.

6a. The new boiler is a major project for emissions of hazardous air pollutants (HAPs) because its potential annual emissions of hydrogen chloride are 76.5 tons. However, USEPA has determined that it is neither appropriate nor necessary to regulate utility steam generating units under Section 112 of the Clean Air Act, Air Quality and Emissions Standards for Hazardous Air Pollutants. In case this determination, which has been appealed by the State of Illinois and others, is overturned, this permit contains a case-by-case determination of MACT for the boiler, as would be required under Section 112(g) of the Clean Air Act.

b. New process and production units other than the new boiler that are part of this project are not subject to a case-by-cased determination of MACT under Section 112(g) of the Clean Air Act, because this project is a modification to an existing source for purposes of 40 CFR 63, Subpart B and the other new process and production units do not constitute major sources of HAPs when considered by themselves.

7. The Illinois EPA has determined that the proposed project complies with all applicable Board Air Pollution Control Regulations; the federal rules for PSD, 40 CFR 52.21; and applicable federal New Source Performance Standards (NSPS), 40 CFR 60. The boiler would also comply with MACT under Section 112 of the Clean Air Act and applicable federal regulations thereunder, National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR 63, Subpart B.

8. A copy of the application, the project summary prepared by the Illinois EPA, and a draft of this permit were placed in a nearby

public repository, and the public was given notice and an opportunity to examine this material and to participate in a public hearing and to submit comments on these matters.

INTRODUCTION: IDENTIFICATION OF SIGNIFICANT EMISSIONS UNITS

Unit Number	Description	Emission Control Measures
1	Dallman Unit 4 – Pulverized Coal Boiler	Good Combustion Practices, Low NO_x Burners, Selective Catalytic Reduction, Fabric Filter (Baghouse), Wet Flue Gas Desulfurization (Scrubber), and Wet Electrostatic Precipitator
2	Bulk Material Handling Operations	Various Control Measures (application of water or dust suppressant, enclosures, compaction, and add-on control equipment)
3	Cooling Tower	High-Efficiency Drift Eliminators
4	Roadways and Other Sources of Fugitive Dust	Paving and Dust Control Measures (application of water or other dust suppressants and sweeping or vacuuming to collect dust)

SECTION 1: SOURCE-WIDE PERMIT CONDITIONS

CONDITION 1.1: EFFECT OF PERMIT

a. This permit does not relieve the Permittee of the responsibility to comply with all local, state and federal regulations that are part of the applicable Illinois' State Implementation Plan, as well as all other applicable federal, state and local requirements.

b. In particular, this permit does not relieve the Permittee from the responsibility to carry out practices during the construction and operation of the project, such as application of water or dust suppressant sprays to unpaved traffic areas, as necessary to minimize fugitive dust and prevent an air pollution nuisance from fugitive dust, as prohibited by 35 IAC 201.141.

CONDITION 1.2: VALIDITY OF PERMIT AND COMMENCEMENT OF CONSTRUCTION

a. As provided by 40 CFR 52.21(r)(2), this permit shall become invalid if construction is not commenced within 18 months of the PSD approval becoming effective, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable period of time. The Illinois EPA may extend the 18-month period upon a satisfactory showing that an extension is justified. This condition supersedes Standard Condition 1 of the permit. (See Attachment 3)

b. For purposes of the above provisions, the definitions of "construction" and "commence" at 40 CFR 52.21(b) (8) and (9) shall apply, which requires that a source must enter into a binding agreement for on-site construction or begin actual on-site construction. (See also the definition of "begin actual construction," 40 CFR 52.21(b) (11)).

CONDITION 1.3: ANCILLARY EQUIPMENT, INCLUDING THE TWO DIESEL ENGINES

a. Ancillary equipment, including the two diesel engines, shall be operated in accordance with good air pollution control practices to minimize emissions.

b. i. The diesel engines shall be used as emergency engines, as defined at 35 IAC 211.1920.

ii. The power output of each diesel engine shall be no more than 1,500 horsepower, as necessary to qualify as an emergency or standby unit as defined by 35 IAC 211.1920.

iii. Operation of each diesel engine shall not exceed 200 hours per year.

iv. The fuel fired in the diesel engines shall be ultra-low sulfur (ULS) diesel fuel or other alternative ultra-low sulfur fuel oil containing no more than 15 ppm sulfur (e.g., bio-diesel).

Note: These requirements for the fuel fired in the engines constitute the determination of Best Available Control Technology (BACT) for the engines, as required under the PSD rules.

CONDITION 1.4: AUTHORIZATION TO OPERATE EMISSION UNITS

a. i. Under this permit, the affected boiler (Dallman 4 boiler) may be operated for a period that ends 180 days after the boiler first sends electricity to the grid to allow for equipment shakedown and required emissions testing. This period may be extended by Illinois EPA upon request of the Permittee if additional time is needed to complete shakedown or perform emission testing. This condition supersedes Standard Condition 6. (See Attachment 3)

ii. Upon successful completion of emission testing of the affected boiler demonstrating compliance with applicable limitations, the Permittee may continue to operate the boiler as allowed by Section 39.5(5) of the Environmental Protection Act.

b. i. The remainder of the project equipment, excluding the affected boiler, may be operated under this construction permit for a period of 365 days after initial startup of the affected boiler. This period of time may be extended by the Illinois EPA for up to an additional 365 days upon written request by the Permittee as needed to reasonably accommodate unforeseen difficulties experienced during shakedown of the plant. This condition supersedes Standard Condition 6. (See Attachment 2)

ii. Upon successful completion of emission testing of the affected boiler demonstrating compliance with applicable limitations, the Permittee may continue to operate the remainder of the plant as allowed by Section 39.5(5) of the Environmental Protection Act.

c. For the affected boiler and other new emission units that are part of this project that are subject to federal New Source Performance Standards (NSPS), the Permittee shall fulfill applicable notification requirements of the NSPS, 40 CFR 60.7(a), including:

i. Written notification of commencement of construction no later than 30 days after such date (40 CFR 60.7(a)(1)); and

ii. Written notification of the actual date of initial startup within 15 days after such date (40 CFR 60.7(a)(3)).

CONDITION 1.5: REQUIREMENTS FOR EXISTING LAKESIDE UNITS

a. This permit is issued based on the reduced operation and eventual shutdown of the existing Lakeside Units at the plant (Lakeside Units 7 and 8) in conjunction with the operation of the affected boiler, as follows:

i. Extended Shakedown Period

If the Illinois EPA extends the shakedown period for the affected boiler as provided by Condition 2.1.7(a) beginning at the start of any such extended shakedown period, and continuing until the permanent shutdown of the Lakeside Units, the quarterly emissions from the affected boiler and the Lakeside Units shall not exceed 420 and 2,580 tons of NO_x and SO_2, respectively.

ii. Transition Period

Following the end of the shakedown period, the Lakeside Units shall only operate on a limited basis during a transition period for the affected boiler. For this purpose, the Lakeside Units shall only be operated, when the affected boiler is out of service for an extended outage, i.e., an outage of greater duration that those typically associated with the normal maintenance of a coal-fired boiler at a power plant. The duration of this transition period shall be no more than 18 months from the end of the shakedown Period, unless extended by the Illinois EPA upon written request by the Permittee showing that (1) the operating record and other aspects of the affected boiler are such that extended outage(s) will be required to make enhancement to the boiler so that it will be able to serve as a reliable source of electricity and (2) the Permittee is undertaking appropriate steps to make the affected boiler a reliable source of electricity.

Note: This permit does not relax any requirements for existing Lakeside Units during the shakedown or transition periods for the affected boiler.

iii. Permanent Shutdown

By the end of the transition period, the Permittee shall permanently shutdown the Lakeside Units.

Note: These requirements are imposed on the existing Lakeside Units because the Permittee has relied upon a contemporaneous decrease in emissions, from the shutdown of the Lakeside Units, to demonstrate that this project is not a major modification for emissions of SO2 or NO_x under the federal PSD rules, 40 CFR 52.21.

SECTION 2: UNIT-SPECIFIC CONDITIONS FOR PARTICULAR EMISSION UNIT

CONDITION 2.1: UNIT-SPECIFIC CONDITIONS FOR THE BOILER

2.1.1 Emission Unit Description

The affected unit for the purpose of these specific permit conditions is the new pulverized coal boiler (Dallman Unit 4) with associated pollution control train. The boiler would also have the capability to burn natural gas, which would be used for startup of the boiler.

2.1.2 Control Technology Determination

a. The affected boiler shall be operated and maintained with the following features to control emissions:

i. Good combustion practices.

ii. Low-NO_x burners.

iii. Selective catalytic reduction (SCR).

iv. Fabric Filter or "baghouse".

v. Wet flue gas desulfurization or "scrubber".

vi. Wet electrostatic precipitator (WESP).

b. The emissions from the affected boiler shall not exceed the following limits:

i. A. PM – 0.015 lb/million Btu.

This limit shall apply as a 3-hour block average, with compliance determined by emission testing for PM (filterable) in accordance with Condition 2.1.8 and from equipment operation. This limit shall not apply during startup, shutdown and malfunction as addressed by Condition 2.1.2(e).

B. PM – 0.035 lb/million Btu.

This limit shall apply as a 3-hour block average, with compliance determined by emission testing for PM (filterable and condensable) in accordance with Condition 2.1.8 and from equipment operation. This limit shall not apply during startup, shutdown and malfunction as addressed by Condition 2.1.2(e). A lower limit (as low as 0.018 lb/million Btu) may be set pursuant to Condition 2.1.15, which requires reevaluation of the above limit based upon actual PM_{10} emissions of the affected boiler.

ii. CO - 0.120 lb/million Btu.

This limit shall apply as a 3-hour block average, with compliance determined by emission testing in accordance with Condition 2.1.8 and from equipment operation. This limit shall not apply during startup, shutdown and malfunction as addressed by Condition 2.1.2(d).

iii. Sulfuric Acid Mist – 0.0050 lb/million Btu.

This limit shall apply as a 3-hour block average, with compliance determined by emission testing in accordance with Condition 2.1.8 and from equipment operation. This limit shall not apply during startup, shutdown and malfunction as addressed by Condition 2.1.2(d).

c. If emission standards for control of mercury and other hazardous air pollutants emitted from coal-fired utility boilers have not yet been adopted by USEPA pursuant to Section 112 of the Clean Air Act and the affected boiler must be subject to a case-by-case determination of MACT pursuant to Section 112(g) of the Clean Air Act (as would occur if USEPA's March 2005 determination for utility steam generating units pursuant to Section 112(n)(1) of the Clean Air Act is reversed or overturned), the affected boiler shall comply with the following standards for emissions of hazardous air pollutants pursuant to Section 112(g) of the Clean Air Act until such time as the boiler must comply with more stringent standards adopted by USEPA pursuant to Section 112(c) of the Clean Air Act:

i. A. The affected boiler shall comply with one of the following Compliance Alternative for emissions of mercury:

I. An overall removal efficiency of 95 percent achieved without injection of activated carbon or other similar material specifically used to control emissions of mercury, comparing the emissions and the mercury contained in the coal supply (Alternative 1); or

II. Control by injection of powdered activated carbon or other material or a combination of materials specifically for control of mercury emissions to achieve the maximum practicable degree of mercury removal, as established in accordance with Attachment 4 (Alternative 2).

B. Compliance with these Alternatives shall be demonstrated as follows:

I. For Alternative 1, unless provisions are established in the source's CAAPP Permit for compliance to be demonstrated by use of

continuous emission monitoring, compliance shall be demonstrated by periodic testing and proper operation of the affected boiler consistent with other applicable requirements that relate to control of mercury (e.g., requirements applicable to PM and SO_2 emissions) as may be further developed, or revised in provisions for the boiler in the CAAPP Permit. For the purpose of determining the overall control efficiency for mercury, if the coal supply to the boiler is washed, the effect of coal washing shall be included, based upon a nominal value for the efficiency of coal washing for removal of mercury. For conventional coal cleaning, this value shall be 25 percent. For coal cleaning using advanced techniques, a higher value may be set by the Illinois EPA in a CAAPP permit, based upon a demonstration from the Permittee for the typical range of effectiveness of the cleaning process in removing mercury from the raw coal supply.

II. For Alternative 2, compliance shall be demonstrated by proper operation of the affected boiler and such other practices developed pursuant to Attachment 4 and the applicable State construction permit for the mercury control system.

C. These Alternatives shall take effect 9 months after initial startup of the affected boiler, provided however, the Permittee may, upon written notice to the Illinois EPA, extend this period for up to an additional 9 months if needed for detailed evaluation of mercury emissions from the affected boiler or physical changes to the boiler related to control of mercury emissions. As part of this notice, the Permittee shall explain why the necessary evaluation of emissions or physical changes to the affected boiler could not reasonably be completed earlier, identify the activities that it intends to perform to evaluate emissions or further enhance control for emissions, and specify the particular practices it will use during this period as good air pollution control practices to minimize emissions of mercury. Prior to these Alternatives taking effect, the Permittee shall use good air pollution control practices to minimize emissions of mercury.

Note: In conjunction with either Alternative, the Permittee must also conduct continuous emissions monitoring on a continuous or semi-continuous basis for the emissions

of mercury from the affected boiler. (Refer to Condition 2.1.9-2.)

ii. A. The affected boiler shall comply with one of the following Compliance Alternatives for emissions of hydrogen chloride:

I. An emission rate of 0.020 lb/million Btu, 3-hour average (Alternative 1); or

II. A removal efficiency of 97.5 percent, comparing the emissions and the chlorine content of the fuel supply, expressed as equivalent hydrogen chloride (Alternative 2).

B. Compliance with these Alternatives shall be demonstrated by periodic testing and proper operation of the boiler consistent with other applicable requirements that relate to control of SO_2 emissions, as may be further developed or revised in provisions for the boiler in the source's CAAPP Permit.

C. These Compliance Alternatives shall take effect 9 months after initial startup of the boiler. Prior to such date, the Permittee shall use good air pollution control practices to minimize emissions of hydrogen chloride.

iii. The affected boiler shall comply with an emission rate of 0.0036 lb/million Btu for emissions of VOM. This limit shall apply as a 3-hour block average, with compliance determined by emission testing in accordance with Condition 2.1.8 and from equipment operation.

iv. Notwithstanding the above, during periods of startup, shutdown and malfunction, as addressed by Condition 2.1.2(d), the above emission standards for mercury*, hydrogen chloride and VOM shall not apply. Emissions during such periods shall be addressed by the Startup, Shutdown and Malfunction Plan as provided by 40 CFR Part 63, Subpart A. (See also Condition 2.1.6(a)(ii).)

* If provisions are established in a CAAPP permit that allow compliance with the mercury standard to be determined with continuous emission monitoring with a compliance period longer than one month, mercury emissions during periods of startup, shutdown and malfunction shall be included in the determination of compliance.

d. The Permittee shall use good air pollution control practices to minimize emissions during startup, shutdown and malfunction of the affected boiler as further addressed in Condition 2.1.6, including the following:

i. Use of natural gas during startup to heat the affected boiler prior to initiating firing of coal;

ii. Operation of the affected boiler and associated air pollution control equipment in accordance with written operating procedures that include Startup, Shutdown and Malfunction Plan(s) (See also Condition 2.1.6(a).); and

iii. Inspection, maintenance and repair of the affected boiler and associated air pollution control equipment in accordance with written maintenance procedures.

Note: For CO, PM and sulfuric acid mist, for which the limits in Condition 2.1.2(b) do not apply during startup, shutdown and malfunction, the numerical limits set by Condition 2.1.7(b) (Attachment 1: Table I), which address emissions in lb/hour and which apply at all times, also serve as "secondary" numerical limits for purposes of BACT to address periods of startup, shutdown and malfunction, with compliance determined based on engineering analysis and calculations.

2.1.3 Applicable Federal Emission Standards

a. The affected boiler is subject to a New Source Performance Standard (NSPS) for Electric Utility Steam Generating Units, 40 CFR 60, Subpart Da and related requirements in 40 CFR 60, Subpart A, General Provisions.

i. The emissions and opacity from the affected boiler shall not exceed the applicable limits pursuant to the NSPS. In particular, the emissions from the boiler shall not exceed the following limits applicable to firing of solid fuel:

A. PM (as measured by USEPA Method 5) - 0.03 lb/million Btu heat input and 1 percent of potential combustion concentration when combusting solid fuel, pursuant to 40 CFR 60.42a(a). (Compliance with the PM emission limitation constitutes compliance with the percent reduction requirements, pursuant to 40 CFR 60.42a(1).)

B. Opacity - 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity, pursuant to 40 CFR 60.42a(b).

C. SO_2 - 1.20 lb/million Btu heat input and 10 percent of the potential combustion concentration (90 percent reduction) 30-day rolling average basis, pursuant to 40 CFR 60.43a(a)(1).

D. NO_x - 1.6 lb/MW-hr gross energy output, 30-day rolling average basis, pursuant to 40 CFR 60.44a(d).

E. Mercury - 0.000021 lb/gross MW-hr, 12-month rolling average basis, pursuant to 40 CFR 60.45a(1).

ii. A. Pursuant to 40 CFR 60.48a(a), (c) and (g), the above emission limits for opacity, PM, NO_x and mercury apply at all times, except during periods of startup, shutdown or malfunction as defined by 40 CFR 60.2.

B. Pursuant to 40 CFR 60.48a(g), the above emission limits for SO_2 apply at all times, except during periods of startup or shutdown, as defined by 40 CFR 60.2.

iii. At all times, the Permittee shall maintain and operate the affected boiler, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions, pursuant to 40 CFR 60.11(d).

2.1.4 Applicable State Emission Standards

The affected boiler is subject to the following state emission standards.

a. Opacity – 35 IAC 212.122 (20 percent opacity)

b. PM – 35 IAC 212.204 (0.1 lb/million Btu)*

c. SO_2 – 35 IAC 214.121 (1.2 lb/million Btu)*

d. CO – 35 IAC 216.121 (200 ppm, @ 50 % excess air)*

e. NO_x – (1) 35 IAC 217.121 (0.7 lb/million Btu), and (2) 35 IAC Part 217, Subpart V (0.25 lb/million Btu, as a seasonal average during each ozone control period, i.e., May through September)*

* This standard is not as stringent as the requirement in Condition 2.1.2 or 2.1.7.

2.1.5. Applicability of Other Regulatory Programs

a. The affected boiler is an affected unit under the Acid Rain Deposition Control Program pursuant to Title IV of the Clean Air Act. As an affected unit, the boiler is subject to an emission standard for NO_x and the Permittee must conduct emission monitoring for SO_2 and NO_x emissions and hold SO_2 allowances for the SO_2 emissions of the boiler during each year, as set forth in applicable regulations at 40 CFR Parts 72, 73 and 75.

b. i. The affected boiler qualifies as an Electrical Generating Unit (EGU) for purposes of 35 IAC Part 217, Subpart W, the NO_x Trading Program for Electrical Generating Units. As an EGU, the Permittee will have to hold NO_x allowances for the

NO_x emissions of the boiler during each seasonal control period.

ii. The affected boiler also qualifies as an Electrical Generating Unit for purposes of the USEPA's Clean Air Interstate Rule (CAIR). When this rule takes effect, the Permittee will be subject to the requirements of this rule, which include the obligation to hold both SO_2 and NO_x allowances for the emissions of the boiler in accordance with this rule.

c. The affected boiler shall comply with applicable requirements for control of mercury emissions from coal-fired utility boilers in Illinois as approved or established by USEPA pursuant to the "Clean Air Mercury Rule," 40 CFR 60 Subpart HHHH.

2.1.6 Operating Requirements

a. The Permittee shall operate the affected boiler and associated air pollution control equipment in accordance with good air pollution control practices to minimize emissions, by operating in accordance with detailed written operating procedures as it is safe to do so. These procedures at a minimum shall:

i. Address startup, normal operation, shutdown and malfunction events.

ii. With respect to startup, shutdown and malfunction, the plan shall fulfill substantive requirements of 40 CFR 63.6(e) for a Startup, Shutdown and Malfunction Plan and be subject to procedural requirements for such plans as if the affected boiler was subject to 40 CFR Part 63, except that the Illinois EPA shall substitute for USEPA for purposes of administration. This plan shall include detailed provisions for review of relevant operating parameters of the affected boiler systems during startup, shutdown and malfunction as necessary to make adjustments and corrections to reduce or eliminate any excess emissions.

Note: If the affected boiler were to become subject to requirements of Section 112 of the Clean Air Act, such a plan would be applicable as a matter of rule and would be administered by both the USEPA and the Illinois EPA.

iii. Specifically with respect to startup, address readily foreseeable startup scenarios, including so called "hot startups" when the operation of the boiler is only temporarily interrupted, and provide for appropriate review of the operational condition of the boiler prior to initiating startup of the boiler.

iv. A. With respect to malfunction, identify and address likely malfunction events with specific programs of corrective actions, and provide that upon occurrence

of a malfunction that will result in emissions in excess of the applicable limits in Condition 2.1.2(b), 2.1.3 and 2.1.4, the Permittee shall, as soon as practicable, repair the affected equipment, reduce the operating rate of the boiler, remove the boiler from service or take other action so that excess emissions cease.

B. Consistent with the above, if the Permittee has maintained and operated the affected boiler and associated air pollution control equipment so that malfunctions are infrequent, sudden, not caused by poor maintenance or careless operation, and in general are not reasonably preventable, the Permittee shall begin shutdown of the boiler within 90 minutes, unless the malfunction is expected to be repaired within 120 minutes or such shutdown could threaten the stability of the regional electrical power supply. In such case, shutdown of the system shall be undertaken when it is apparent that repair will not be accomplished within 120 minutes or shutdown will not endanger the regional power system. In no case shall shutdown of the boiler be delayed solely for the economic benefit of the Permittee.

Note: If the Permittee determines that the continuous emission monitoring system (CEMS) is inaccurately reporting excess emissions, the boiler may continue to operate provided the Permittee records the information it is relying upon to conclude that the boiler and associated emission control systems are functioning properly and the CEMS is reporting inaccurate data and the Permittee takes prompt action to resolve the accuracy of the CEMS.

v. With respect to normal operation of the boiler, provide for formal comprehensive “tuning” of the boiler by qualified personnel for good combustion as part of initial startup and periodically thereafter, with subsequent operation and maintenance of the boiler directed at keeping the boiler in a tuned condition.

b. The Permittee shall maintain the affected boiler and associated air pollution control equipment in accordance with good air pollution control practices to assure proper functioning of equipment and minimize malfunctions, including maintaining the boiler in accordance with written procedures developed for this purpose.

c. The Permittee shall handle the fuel for the affected boiler in accordance with a written Fuel Management Plan that shall be designed to provide the boiler with a consistent fuel supply that meets relevant criteria needed for proper operation of the boiler and its control systems.

d. The Permittee shall review its operating and maintenance procedures and its Fuel Management Plan for the boiler as required above on a regular basis and revise them, if needed, consistent with good air pollution control practices based on actual operating experience and equipment performance. This review shall occur at least annually if not otherwise initiated by occurrence of a startup, shakedown, or malfunction event that is not adequately addressed by the existing plans or a specific request by the Illinois EPA for such review.

2.1.7 Emission Limitations

a. Emissions of SO_2 and NO_x from the affected boiler shall not exceed 0.20 and 0.10 lb/million Btu, respectively, on a rolling average of 30 boiler operating days. For this purpose, emissions shall be determined as the ratio of the mass of emissions and the heat input to the boiler during each period of 30 boiler operating days, with the mass of emissions determined from continuous emission monitoring, as required by Condition 2.1.9. These limitations shall take affect at the same time that the SO_2 and NO_x standards of the NSPS, 40 CFR 60 Da (Condition 2.1.3), which also apply on a 30-day rolling average, become effective.

b. Emissions from the affected boiler shall not exceed the limitations expressed in lb/hour in Attachment 1, Table 1-A. Compliance with these limitations shall be determined with testing or monitoring as required by Conditions 2.1.8 or 2.1.9, as follows, and proper equipment operation in accordance with Condition 2.1.6.

i. For emissions of SO_2 and NO_x, compliance is to be determined on a rolling average of 30 boiler operating days with continuous emission monitoring (see Condition 2.1.9).

ii. For other pollutants, compliance is to be determined on a 3-hour average basis, consistent with the duration of emission testing as addressed by Condition 2.1.8.

c. Annual emissions from the affected boiler shall not exceed the limitations in Attachment 1, Table 1-A. Compliance with these annual limitations shall be determined from a rolling total of monthly emission data, i.e., from the sum of emission data for a particular month and the preceding 11 months, for a total of 12 months of data.

2.1.8 Emission Testing

a. i. A. Within 60 days after achieving the maximum production rate at which the affected boiler will be operated but not later than 180 days after initial startup of the affected boiler, the Permittee shall have tests conducted for opacity and emissions of NO_x, CO, PM, VOM, SO_2, hydrogen chloride, fluorides, sulfuric acid

mist, and mercury and other metals, as follows, at its expense by an approved testing service while the boiler is operating at maximum operating load and other representative operating conditions. (In addition, the Permittee may also perform measurements to evaluate emissions at other load and operating conditions.)

B. This period of time may be extended by the Illinois EPA for up to an additional 365 days upon written request by the Permittee as needed to reasonably accommodate unforeseen difficulties in the startup and testing of the boiler, provided that initial performance testing required by the NSPS, 40 CFR Part 60, Subpart Da, has been completed for the boiler and the test report has been submitted to the Illinois EPA.

ii. Between 9 and 15 months after performance of the initial testing that demonstrates compliance with applicable requirements, the Permittee shall have the emissions of PM, VOM, hydrogen chloride, hydrogen fluoride, sulfuric acid mist, and mercury and other metals from the affected boiler retested as specified above.

iii. The Permittee shall conduct additional tests for PM emissions as needed for purposes of the evaluation of condensable PM_{10} emissions required by Condition 2.1.15.

iv. A. Thereafter, the Permittee shall also test PM emissions from the affected boiler, as provided below, at a regular interval that is no greater than 30 months, except as follows. If the results of two of these PM tests for the boiler in series demonstrate PM emissions that are two thirds or less than the applicable limits (e.g., 0.010 lb/million Btu or less for PM, as compared to the limit of 0.015 lb/million Btu), the maximum interval for PM testing of such boiler will be at least once every 48 months. However, if a PM test for such affected boiler then shows PM emissions that are more than two thirds of an applicable limit, the maximum interval between testing shall revert to 30 months until two consecutive tests again show PM emissions that are two thirds or less than the applicable limits. For the purpose of these provisions, the two consecutive tests must be at least 24 months apart.

Note: The CAAPP Permit may establish requirements for more frequent emission testing.

B. Whenever PM testing for the boiler is performed as required above, testing for emissions of carbon monoxide (unless monitoring is conducted pursuant to

Condition 2.1.9-3) and hydrogen chloride shall also be performed, as provided below.

v. In addition to the emission testing required above, the Permittee shall perform emission tests as provided below as requested by the Illinois EPA for the boiler within 45 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA. Among other reasons, such testing may be required if there is a significant increase in the mercury or chlorine content of the fuel supply to the boiler.

Note: Specific requirements for periodic emission testing may be established in provisions for the affected boiler in the CAAPP Permit for the source.

vi. Within two years of the initial startup of the affected boiler, the Permittee shall have emission testing conducted for dioxin/furan emissions as provided below.

b. The following methods and procedures shall be used for testing:

i. The following test methods shall be used unless use of other methods adopted by or being developed by USEPA is approved by the Illinois EPA.

Sampling Points	Method 1
Gas Flow/Velocity	Method 2
Flue Gas Weight	Method 3 or 3A
Moisture	Method 4
PM - Filterable[1]	Method 5, or Methods 5 and Method 201 or 201A (40 CFR 51, Appendix M), with Method 19 as specified in 40 CFR 60.48a(b)
PM - Condensable	Method 202[2]
NO_x[3]	Method 19, as specified in 40 CFR 60.48a(d)
SO_2[3]	Method 19, as specified in 40 CFR 60.48a(c)
CO	Method 10
VOM[4]	Methods 18 and 25A
Hydrogen Chloride	Method 26
Fluorides (HF)	Method 26
Sulfuric Acid Mist	Method 8[2]
Metals[5, 6]	Method 29
Dioxin/Furan	Method 23
Opacity	Method 9

Notes:

1. The Permittee may report all PM emissions measured by USEPA Method 5 as filterable PM, in which case separate testing using USEPA Method 201 or 201A need not be performed to measure filterable PM_{10}.

2. Notwithstanding the general requirement to use USEPA test methods, appropriate refinements or adaptations may be made to the USEPA test methods or other established test methods may be used for testing for sulfuric acid mist, subject to review and approval by the Illinois EPA to facilitate accurate and reliable measurements given the composition of the exhaust. In particular, adaptations shall be made to USEPA Method 202, to prevent positive bias from conversion of sulfur dioxide to sulfuric acid in the impingers, e.g., by additional purges or separate, simultaneous measurements of the sulfuric acid emissions.

3. Emission testing shall be conducted for purposes of certification of the continuous emissions monitoring systems (CEMS) required by Condition 2.1.9. Thereafter, the SO_2, NO_x and mercury emission data from certified CEMS may be provided in lieu of conducting emissions tests.

4. The Permittee may exclude methane, ethane and other exempt compounds from the results of any VOM test provided that the test protocol to quantify and correct for the presence of any such compounds in the exhaust of the boiler is included in the test plan approved by the Illinois EPA.

5. Testing for metals shall address emissions of mercury, arsenic, beryllium, cadmium, chromium, lead, manganese, and nickel.

6. During the initial emissions testing for metals, the Permittee shall also conduct measurements using established test methods for the principle forms of mercury present in the exhaust, i.e., particle bound mercury, oxidized mercury and elemental mercury.

ii. The results of emission testing may be presented as the average of individual test runs to determine compliance, as provided by 40 CFR 60.8(f) and 35 IAC Part 283.

c. i. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with the Condition 3.2.

ii. In addition to other information required in a test report, test reports shall include detailed information on the operating conditions of the boiler during testing, including:

A. Fuel consumption (in tons);

B. Composition of fuel (Refer to Condition 2.1.10(b)), including the metals, chlorine and fluorine content, expressed in pound per million Btu;

C. Firing rate (million Btu/hr) and other significant operating parameters of the boiler, including temperature of the flue gas entering the SCR;

D. Control device operating rates or parameter, e.g., SCR reagent injection rate, baghouse pressure drop, scrubber pressure drop and reagent addition rate, and WESP voltages current flows and water flow rate;

E. Opacity of the exhaust from the boiler, 6-minute averages and 1-hour averages;

F. Turbine/Generator output rate (MW gross).

2.1.9-1 Emissions Monitoring – SO_2, NO_x and Opacity

a. i. The Permittee shall install, certify, operate, calibrate, and maintain continuous monitoring systems on the affected boiler for opacity, emissions of SO_2 and NO_x, and either oxygen or carbon dioxide in the exhaust. The opacity monitor shall be located before the wet control equipment if needed to prevent interference from moisture in the ductwork.

ii. The Permittee shall also operate and maintain these monitoring systems according to site-specific monitoring plan(s), which shall be submitted at least 60 days before the initial startup of the boiler to the Illinois EPA for review and comment. With this submission, the Permittee shall submit the proposed type of monitoring equipment and proposed sampling location(s), which shall be approved by the Illinois EPA prior to installation of equipment.

iii. The Permittee shall fulfill the applicable requirements for monitoring in: the NSPS, 40 CFR 60.13, 60.47a, and 40 CFR 60 Appendix B; the federal Acid Rain Program, 40 CFR Part 75; 35 IAC Part 217, Subpart W, and the NO_x Trading Program for Electrical Generating Units. These rules require that the Permittee maintain detailed records for both the measurements made by these systems and the maintenance, calibration and operational activity associated with the monitoring systems.

b. In addition, when NO_x or SO_2 emission data are not obtained from a continuous monitoring system because of system breakdowns, repairs, calibration checks and zero span adjustments, emission data shall be obtained by using standby monitoring systems, emission testing using appropriate USEPA Reference Methods, or other approved methods as necessary to provide emission data for a minimum of 75 percent of the operating hours in the boiler

operating day, in at least 22 out of 30 successive boiler operating days, pursuant to 40 CFR 60.47a(f) and (h).

Note: Fulfillment of the above criteria for availability of emission data from a monitoring system does not shield the Permittee from potential enforcement for failure to properly maintain and operate the system.

c. Compliance with the most stringent emission monitoring requirements for a pollutant is sufficient to demonstrate compliance with all emission monitoring requirements for that pollutant.

2.1.9-2 Emissions Monitoring – Mercury

a. The Permittee shall install, operate and maintain a continuous or semi-continuous monitoring system to measure the mercury emissions of the boiler in accordance with 40 CFR Part 75, Subpart I.

b. The Permittee shall keep logs for the operation, calibration and maintenance of this monitoring system.

2.1.9-3 Emissions Monitoring – CO

a. If the emissions of CO measured by testing in accordance with Condition 2.1.8(a)(i) or (ii) are greater than 0.09 lb/million Btu, the Permittee shall install, operate and maintain a continuous monitoring system to measure the CO emissions of the boiler, which shall continue to be operated until such time as the above criterion is met, as approved by the Illinois EPA.

b. The Permittee shall keep logs for the operation, calibration and maintenance of this monitoring system.

2.1.10 Operational Monitoring and Measurements

a. The Permittee shall install, evaluate, operate, and maintain meters to measure and record consumption of natural gas by the affected boiler.

b. i. The Permittee shall sample and analyze the sulfur and heat content of the coal supplied to the boiler in accordance with USEPA Reference Method 19 (40 CFR 60, Appendix A, Method 19).

ii. The Permittee shall analyze samples of all coal supplies that are components of the coal supply to the boiler and the coal supply, itself, for mercury and other metals and chlorine content, as follows:

A. Analysis shall be conducted in accordance with USEPA Reference Methods or other method approved by USEPA.

B. Analysis of the fuel supply to the boiler, itself, shall be conducted in conjunction with performance testing of the boiler.

C. Analysis of representative samples of coal shall be conducted in conjunction with acceptance of coal from off-site.

D. Analysis of representative samples of coal shall be conducted at least every two years, if a more frequent analysis is not needed pursuant to the above requirements.

c. i. The Permittee shall install, operate and maintain continuous parametric monitoring systems (CPMS) to measure key operating parameters of the control system for the boiler, including:

A. Reagent injection rate for the SCR system;

B. Pressure drop across the baghouse;

C. Reagent addition rate for the scrubber; and

D. Voltages, currents, sparking rates and water flow for the WESP.

ii. The Permittee shall maintain the records of the measurements made by these systems and records of maintenance and operational activity associated with these systems.

d. i. Within 12 months of the end of the shakedown period for the boiler, the Permittee shall install and operate a continuous emissions monitoring system (CEMS) for PM on the affected boiler for the purpose of compliance assurance monitoring. However, the Permittee may, upon written notice to the Illinois EPA, extend this period for up to an additional 6 months if needed for detailed evaluation of mercury emissions from the affected boiler or physical changes to the boiler related to control of mercury emissions. As part of this notice, the Permittee shall explain why implementation of continuous monitoring cannot reasonably be completed earlier, identify the activities that need to be completed prior to beginning implementation of monitoring, and explain why such activities could not be completed sooner.

ii. This CEMS shall monitor PM concentration downstream of the WESP, provided, however, with approval of the Illinois EPA the sampling point for this CEMS may be shifted to a point upstream of the scrubber if it is demonstrated within 18 months of initial operation of the CEMS that it cannot be reliably operated following the WESP. As part of its

approval of relocation of the CEMS, the Illinois EPA may approve operation of the affected boiler without the CEMS for up to 10 days, as such an outage cannot be reasonably avoided while the CEMS is being relocated.

iii. The Permittee shall operate, calibrate and maintain this system in accordance with the applicable USEPA performance specification and other applicable requirements of the NSPS for monitoring systems and in a manner that is generally consistent with published USEPA guidance for use of such systems for compliance assurance monitoring.

iv. The Permittee shall also operate and maintain this system according to a site-specific monitoring plan, which shall be submitted to the Illinois EPA for its review and comment at least 90 days before the initial startup of the monitoring system. With this submission, the Permittee shall submit the proposed type of monitoring equipment and proposed sampling location, which shall be approved by the Illinois EPA prior to installation of equipment.

2.1.11 Recordkeeping

a. The Permittee shall maintain the following records with respect to operation and maintenance of the affected boiler and associated control equipment:

i. An operating log for the boiler that, at a minimum, shall address:

A. Each startup of the boiler, including the nature of the startup, sequence and timing of major steps in the startup, any unusual occurrences during the startup, and any deviations from the established startup procedures, with explanation;

B. Each shutdown of the boiler, including the nature and reason for the shutdown, sequence and timing of major steps in the shutdown, any unusual occurrences during the shutdown, and any deviations from the established shutdown procedures, with explanation; and

C. Each malfunction of the boiler system that significantly impairs emission performance, including the nature and duration of the event, sequence and timing of major steps in the malfunction, corrective actions taken, any deviations from the established procedures for such a malfunction, and preventative actions taken to address similar events.

ii. Inspection, maintenance and repair log(s) for the boiler system that, at a minimum, shall identify such activities that are performed related to components that may effect emissions; the reason for such activities, i.e., whether

planned or initiated due to a specific event or condition; and any failure to carry out the established maintenance procedures, with explanation.

iii. Records for the tuning of the boiler required by Condition 2.1.6(a)(v), including identification of the event, condition of the boiler prior to tuning, the condition of the boiler after tuning, and the parameters set as proper tuning of the boiler.

iv. Daily records of steam and electricity generation.

b. The Permittee shall maintain the following records related to the fuel used in the boiler:

i. Records of the sampling and analysis of the fuel supply to the boiler conducted in accordance with Condition 2.1.10(b).

ii. A. Records of the sulfur content of fuel, lb sulfur/million Btu, supplied to the boiler, as determined pursuant to Condition 2.1.10(b)(i); and

B. Records of the sulfur content of fuel supplied to the boiler on a 30-day rolling average, determined from the above data.

iii. Records of the amount of fuel fired in the boiler by type of fuel as specified in 40 CFR Part 60, Appendix A, Method 19.

c. The Permittee shall maintain the following records related to emissions of the boiler:

i. Records of SO_2 and NO_x emissions and operation for each boiler-operating day, as specified by 40 CFR 60.49a.

ii. With respect to the SO_2 reduction-based standard in 40 CFR 60.43a(a)(1), for each 30 day averaging period, records of the SO_2 emissions in lb/million Btu and the required SO_2 emission rate as determined by applying the permissible emission fraction to the potential SO_2 emission rate of the coal supply.

iii. With respect to the limitations in Condition 2.1.7(a), records of the SO_2 and NO_x emission rate in lb/million Btu, for each 30-day averaging period.

iv. For pollutants for which continuous emissions monitoring is not performed to determine compliance, i.e., PM, sulfuric acid mist, VOM, lead, fluorides, hydrogen chloride and CO, if applicable, the following records:

A. Records of the standard emission factors used by the Permittee to determine emissions, with supporting documentation.

B. Records of emissions based on fuel usage, operating data for the boiler and associated control equipment, and the appropriate emission factors, as addressed above, with supporting calculations.

d. The Permittee shall record the following information for any period during which the boiler deviated from an applicable requirement:

i. Each period during which an affected unit exceeded the requirements of this permit, including applicable emission limits, which records shall include at least the information specified by Condition 3.3.

ii. Each period during which opacity of the boiler exceeded the level of opacity at which emission testing has demonstrated that the boiler would comply with PM emission limits.

2.1.12 Notifications

a. The Permittee shall notify the Illinois EPA within 30 days of deviations from applicable requirements that are not addressed by the regular reporting required pursuant to Condition 2.1.13. These notifications shall include the information specified by Condition 3.5.

2.1.13 Reporting

a. i. The Permittee shall fulfill applicable reporting requirements in the NSPS, 40 CFR 60.7(c) and 60.49a, for the boiler. For this purpose, quarterly reports shall be submitted to the Illinois EPA no later than 30 days after the end of each calendar quarter. (40 CFR 60.49a (i))

ii. In lieu of submittal of paper reports, the Permittee may submit electronic quarterly reports for SO_2 and/or NO_x and/or opacity. The electronic reports shall be submitted no later than 30 days after the end of the calendar quarter and shall be accompanied by a certification statement indicating whether compliance with applicable emission standards and minimum data requirements of 40 CFR 60.49a were achieved during the reporting period. (40 CFR 60.49a(j))

b. i. Either as part of the periodic NSPS report or accompanying such report, the Permittee shall report to the Illinois EPA any and all opacity and emission measurements for the boiler that are in excess of the respective requirements set by this permit. These reports shall provide for each such incident: the pollutant emission rate; the date and

duration of the incident; and whether it occurred during startup, malfunction, breakdown, or shutdown. If an incident occurred during malfunction or breakdown, the corrective actions and actions taken to prevent or minimize future reoccurrences shall also be reported. (40 CFR 60.7(c))

ii. These reports shall also address any deviations from applicable compliance procedures for the boiler established by this permit, including specifying periods during which the continuous monitoring systems were not in operation.

c. The Permittee shall comply with applicable reporting requirements under the Acid Rain Program, with a single copy of such report sent to Illinois EPA, Division of Air Pollution Control Compliance Section.

2.1.14 Construction of Additional Control Measures

a. The Permittee is generally authorized under this permit to construct and operate additional devices and features to control emissions from the boiler, which are not described in the application for this permit, as follows. This condition does not affect the Permittee's obligation to comply with the applicable requirements for the affected boiler.

b. This authorization only extends to devices or features such as sorbent injection systems that are designed to reduce emissions that are identified during the detailed design of the boiler and any refinements to that design that occur during construction and the initial operation of the boiler. These measures may also serve to improve boiler operation as they reduce consumption of materials, but do not include measures that would increase the boiler's rated heat input capacity.

c. Prior to beginning actual construction of any such device or feature, the Permittee shall apply for and obtain a separate State construction permit for it from the Illinois EPA pursuant to 35 IAC Part 201, Subpart D.

2.1.15 Revision of Emission Limit for "Total" PM Based on Results of Emission Testing

a. i. The emission limit for "total" PM in Condition 2.1.2(b)(i)(B) shall be lowered based on the results of emissions testing unless the Permittee demonstrates and the Illinois EPA concurs, based on an evaluation as set forth below, that a lower limit cannot be reliably met without unacceptable consequences, i.e., inability to comply with other emission limits or requirements or significant risk to equipment or personnel, and without unreasonable consequences, i.e., a significant increase in maintenance and repair needed for the boiler. For this purpose, the Permittee shall conduct at least four additional emission

tests beyond the initial performance test (total of at least five tests) spread out during the period in which the evaluation is being performed.

ii. A. If the Permittee fails to perform the necessary emission testing for evaluation of PM emissions, the limit for PM shall automatically be lowered to 0.018 lb/million Btu.

B. If the Permittee fails to complete the evaluation in a timely manner in accordance with Condition 2.1.15(b), the limit for PM shall automatically be lowered to the greater of (1) 0.018 lb/million Btu or (2) the sum of the average of the results from the required periodic compliance tests (excluding any tests showing noncompliance and any test results that do not reflect representative operating conditions or otherwise reflect outlying data) and the standard deviation of such results, rounded to two significant digits. (If the statistical evaluation of test results yields a value greater than 0.035 lb/million Btu, i.e., the limit in Condition 2.1.2(b), the limit shall remain at 0.035 lb/million Btu.)

iii. This permit will be revised to set lower limit(s) for PM emissions (but no lower than the above default limits); if the Illinois EPA, after considering the results of any evaluation performed by the Permittee, finds that the boiler can and should be able to consistently comply with such limit(s) without unreasonable consequences.

b. i. If the Permittee elects to perform an evaluation for PM emissions, the evaluation shall be performed in accordance with a plan submitted to the Illinois EPA for review and comment. The plan shall provide for evaluation of PM emissions at moderate load operation of the boiler as well as operation at full load. The initial plan shall be submitted to the Illinois EPA no later than 180 days after initial start-up of the boiler.

ii. A. This evaluation shall be completed and a detailed written report submitted to the Illinois EPA within three years after the initial startup of the boiler. This report shall include proposed alternative limit(s) for PM emissions.

B. This deadline may be extended for an additional year if the Permittee submits an interim report demonstrating the need for additional data to effectively set a revised limit for PM emissions. During this year, at least two more performance tests for PM emissions shall be conducted.

CONDITION 2.2: UNIT-SPECIFIC CONDITIONS FOR FUEL AND OTHER BULK MATERIAL HANDLING, STORAGE, PROCESSING AND LOAD OUT OPERATIONS

2.2.1 Description of Emission Units

The affected units for the purpose of these unit-specific conditions are equipment and facilities handling coal and other bulk materials that are involved with the operation of the affected boiler and that have the potential for particulate matter (PM) emissions. In addition to fuel (coal) for the boiler, limestone is received, handled and stored as a raw material for the scrubber on the boiler. Bottom ash, fly ash and gypsum, which are by-products of the boiler, ESP and scrubber, are also handled, stored and loaded out by truck.

The affected units include new units specifically installed as part of this project. The affected units also include certain existing units that will be altered as part of this project. Only the bottom ash and fly ash from the affected boiler will be handled with entirely new systems. Coal for the affected boiler will be received at the existing truck dump and transferred by existing conveyor to a point above the existing coal storage pile, where coal for the boiler will then be diverted to a new conveyor serving the new coal handling and storage system for the boiler, including the coal storage pile for the boiler. Limestone will be handled in a similar manner, with limestone being received at an existing truck dump and subsequently diverted to the new handling and storage system for limestone for the scrubber on the affected boiler. Gypsum from the affected boiler will be transferred by a new conveyor system to the existing facilities for storage and load out of gypsum, which now handle the gypsum from the scrubbers on the three existing Dallman boilers.

PM emissions associated with certain affected units that handle material that is wet, such as bottom ash and gypsum, will be minimized because the material is wet. PM emissions from the units that handle dry materials will be controlled by various measures including enclosure and covers, application of water and dust suppressants, and dust collection devices.

2.2.2 Control Technology Determination

a. i. PM emissions from an affected unit handling a wet material shall be controlled by:

1. Maintaining the material with adequate moisture to prevent visible emissions directly from such unit during the handling, storage or load out of the material.

2. Collection of spilled material that could become airborne if it dried or were subject to vehicle traffic as part of the Program for Control of Fugitive Dust required by Condition 2.4.

ii. For this purpose, a wet material is a material that has sufficient moisture during normal operation to minimize the

potential for direct emissions, including bottom ash from the affected boiler, which will be collected in a water bath at the bottom of the boiler, gypsum from the scrubber on the boiler, which will be produced by mechanical dewatering of scrubber sludge, and other similar materials with high levels of moisture.

b. PM emissions from an affected unit handling a dry material, other than an existing receiving facility for dry material or a storage pile for dry material and handling operations associated with the storage pile, shall be controlled by:

i. Enclosure of the unit so as to prevent visible fugitive emissions, as defined by 40 CFR 60.671, from the affected unit.

ii. Aspiration to a control device designed to emit no more than 0.01 grains/dry standard cubic foot (gr/dscf), which device shall be operated in accordance with good air pollution control practice to minimize emissions. For this purpose, the control device shall be a baghouse or other filtration type device unless the Permittee demonstrates and the Illinois EPA concurs that another type of control device is preferable due to considerations of operational safety.

c. i. Storage piles shall not be used for storage of fly ash unless the ash has been thoroughly mixed with water so as to effectively eliminate the potential for fugitive emissions.

ii. PM emissions from storage piles for dry material, including material handling operations associated with the piles, shall be controlled by application of water or other dust suppressants so as to minimize fugitive emissions to the extent practicable. For this purpose, there shall either:

A. Be no visible emissions from the affected unit, as determined in accordance with USEPA Method 22, or

B. A nominal control efficiency shall be achieved from the uncontrolled emission rate, as follows, as determined using appropriate USEPA emission factors for particulate emissions from handling of a material dry, in the absence of any control of emissions, and engineering analysis and calculations for the control measures that are actually present: 1) Coal: **90** percent; and 2) Limestone: **99** percent

d. PM emissions from an existing receiving facility for dry material that is used to receive a material for the affected boiler shall be controlled by:

i. Enclosure of the unit and other practices to control PM emissions from the unit such that the opacity of PM emissions does not exceed 10 percent.

ii. Compliance with the requirements of Condition 2.2.2(b)(ii) for any control device that is used to control PM emissions from the unit, if a control device is used.

2.2.3 Applicable Federal Emission Standards

a. Affected units engaged in handling limestone that are affected facilities for purposes of the NSPS for Nonmetallic Mineral Processing Plants, 40 CFR 60, Subpart OOO shall comply with applicable requirements of 40 CFR 60, Subpart OOO and related provisions of 40 CFR 60, Subpart A. The affected facilities for purposes of this NSPS, as specified in 40 CFR 60.670(a), include crushers, grinding mills, screening operations, bucket elevators, belt conveyors, storage bins, and enclosed truck loading stations:

i. Pursuant to the NSPS, 40 CFR 60.672(a), stack emissions of PM from affected facilities are subject to the following limitations:

A. The rate of emissions shall not exceed 0.05 gram/dscm (0.02 gr/dscf).

B. The opacity of emissions shall not exceed 7 percent.*

* This limit would not apply if emissions were to be controlled by a wet scrubber.

ii. Pursuant to the NSPS, 40 CFR 60.672(b), (c) and (d), fugitive emissions of PM from affected facilities are subject to the following limits:

A. The opacity of emissions from any transfer point on a belt conveyor or any other affected facility shall not exceed 10 percent, provided however that this limit would not apply to the opacity of emissions from truck dumping into a screening operation, feed hopper, or crusher, if material were to be dumped directly into an affected facility by truck.

B. Notwithstanding the above, the opacity of fugitive emissions from any crusher for which a capture system is not used, other than emissions from truck dumping into the unit, shall not exceed 15 percent.

iii. Pursuant to the NSPS, 40 CFR 60.672(e), if an affected facility is enclosed in a building, the facility is subject to applicable limits above or the building is subject to the following limits:

A. There shall be no visible fugitive emissions from the building except emissions from a vent as defined in 40 CFR 60.671.

B. Emissions from each vent from the building shall comply with the applicable limits for stack emissions, as set forth in Condition 2.2.3(a)(i).

b. Affected units engaged in handling and processing coal shall comply with applicable requirements of the NSPS for Coal Preparation Plants, 40 CFR 60, Subpart Y, and related provisions of 40 CFR 60, Subpart A.

Pursuant to the NSPS, the opacity of the exhaust from coal processing and conveying equipment, coal storage systems (other than open storage piles), and coal loading systems shall not exceed 20 percent. [40 CFR 60.252(c)]

c. At all times, the Permittee shall maintain and operate affected units that are subject to NSPS, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions, pursuant to 40 CFR 60.11(d).

2.2.4 Applicable State Emission Standards

a. The emission of smoke or other PM from affected units shall not have an opacity greater than 30 percent, except as allowed by 35 IAC 212.124. Compliance with this limit shall be determined by 6-minute averages of opacity measurements in accordance with USEPA Reference Method 9. [35 IAC 212.109 and 212.123(a)]

b. With respect to emissions of fugitive PM, affected units shall comply with 35 IAC 212.301, which provides that emissions of fugitive PM shall not be visible from any process, including any material handling or storage activity, when looking generally toward the zenith at a point beyond the property line of the source, except when the wind speed exceeds 25 miles per hour, as provided by 35 IAC 212.314.

c. The emissions of PM from affected units other than units excluded by 35 IAC 212.323 (refer to Condition 2.2.5(b)) shall comply with the applicable limit pursuant to 35 IAC 212.321, which rule limits emissions based on the process weight rate of emission units and allows a minimum emission rate of 0.55 lb/hour for any individual unit.

2.2.5 Applicability of Other Regulations

a. This permit is issued based on the affected units that handle gypsum not being subject to the NSPS, 40 CFR 60 Subpart OOO because the Permittee does not crush or grind gypsum, so that the Permittee does not operate a nonmetallic mineral processing plant, as defined by 40 CFR 60.671, for gypsum.

b. This permit is issued based on the storage piles and associated operations and the coal handling operations associated with the affected boiler not being subject to 35 IAC 212.321 pursuant to 35 IAC 212.323, which provides that 35 IAC 212.321 shall not apply to emission units, such as stock piles, to which, because of the disperse nature of such emission units, such rules cannot reasonably be applied.

2.2.6 Operating Requirements

a. i. Bulk materials, associated with the operation of the affected boiler that have the potential for PM emissions, shall be stored in silos, bins, and buildings, without storage of such materials in outdoor piles except on a temporary basis during breakdown or other disruption in the capabilities of the enclosed storage facilities.

ii. Outdoor storage piles for a dry material associated with the affected boiler shall be equipped and operated with adjustable stacker(s), rotary stacker(s), ladders or other comparable devices to minimize the distance that material drops when added to the pile and minimize the associated PM emissions.

b. The Permittee shall implement and maintain the control measures for the affected units that minimize visible emissions of PM and provide assurance of compliance with the applicable limits and standards in Conditions 2.2.2, 2.2.3 and 2.2.4.

c. The affected units, including associated control equipment shall be operated in accordance with good air pollution control practice to minimize emissions.

2.2.7 Emission Limitations

Annual emissions of particulate matter (PM) from the affected units shall not exceed 11.8 tons/year. Compliance with this annual emission limit shall be determined from a rolling total of 12 months of emission data, calculated from the material handled for the affected boiler, operating information for affected units, and appropriate emission factors. (Refer to Conditions 2.2.11(h).)

2.2.8-1 Initial Performance Testing

a. Within 60 days after achieving the maximum production rate at which each new affected unit subject to NSPS will be operated, but not later than 180 days after initial startup of each such unit, the Permittee shall have emissions tests conducted at its expense as follows below by an approved testing service under unit operating conditions that are representative of maximum emissions.

b. The following methods and procedures shall be used for emission testing:

i. The following USEPA methods and procedures shall be used for the affected units subject to 40 CFR Part 60, Subpart OOO, as specified in 40 CFR 60.675, for PM measurements for stack emissions and opacity measurements for both stack and fugitive emissions:

PM - Method 5 or 17
Opacity - Method 9

ii. The following USEPA methods and procedures shall be used for PM and opacity measurements for the affected units subject to 40 CFR 60, Subpart Y, as specified in 40 CFR 60.254:

PM - Method 5, with the sampling time and sample volume for each run to be at least 60 minutes and 30 dscf and sampling to begin no less than 30 minutes after startup and to terminate before shutdown begins.

Opacity - Method 9, with measurements performed by a certified observer.

c. Test plan(s), test notifications, and test reports shall be submitted to the Illinois EPA in accordance with Condition 3.2.

2.2.8-2 Periodic Testing

a. i. Unless otherwise specified for the affected units by the source's CAAPP permit, the Permittee shall have the opacity of the emissions of the affected units during representative weather and operating conditions determined by a qualified observer in accordance with USEPA Test Method 9, as further specified below.

A. If emissions are normally visible from a unit when it is in operation, as determined by USEPA Reference Method 22, opacity testing shall be conducted at least annually.

B. Upon written request by the Illinois EPA, such testing shall be conducted for specific affected units within 45 calendar days of the request or on the date agreed upon by the Illinois EPA, whichever is later.

ii. The duration of opacity observations for each test shall be at least 30 minutes (five 6-minute averages) unless the average opacities for the first 12 minutes of observations (two six-minute averages) are both less than 5.0 percent.

iii. A. The Permittee shall notify the Illinois EPA at least 7 days in advance of the date and time of these tests, in order to allow the Illinois EPA to witness testing. This notification shall include the name and employer of the qualified observer(s).

B. The Permittee shall promptly notify the Illinois EPA of any changes in the time or date for testing.

iv. The Permittee shall provide a copy of its observer's readings to the Illinois EPA at the time of testing, if Illinois EPA personnel are present.

v. The Permittee shall submit a written report for this testing within 15 days of the date of testing. This report shall include:

A. Date and time of testing.

B. Name and employer of qualified observer.

C. Copy of current certification.

D. Description of observation conditions, including recent weather.

E. Description of the operating conditions of the affected processes.

F. Raw data.

G. Opacity determinations.

H. Conclusions.

b. Unless otherwise specified for the affected units by the source's CAAPP permit:

i. Within 90 days of a written request from the Illinois EPA, the Permittee shall have the PM emissions at the stacks or vents of affected units, as specified in such request, measured during representative operating conditions, as set forth below.

ii. A. Testing shall be conducted using appropriate USEPA Test Methods, including Method 5 or 17 for PM emissions.

B. Compliance may be determined from the average of three valid test runs, subject to the limitations and conditions contained in 35 IAC Part 283.

iii. The Permittee shall submit a test plan to the Illinois EPA at least 60 days prior to testing, which plan shall include

the information for test plans specified by General Condition 8.6.2 of the source's CAAPP permit.

iv. The Illinois EPA shall be notified prior to these tests to enable the Illinois EPA to observe these tests. Notification of the expected date of testing shall be submitted a minimum of 30 days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of the test. The Illinois EPA may, at its discretion, accept notification with shorter advance notice provided that the Illinois EPA will not accept such notification if it interferes with the Illinois EPA's ability to observe the testing.

v. The Permittee shall expeditiously submit Final Report(s) for required emission testing to the Illinois EPA, no later than 90 days after the date of testing. These reports shall include the information specified in Condition 8.6.3 of the source's CAAPP permit and the following information:

A. A summary of results.

B. Detailed description of test method(s), including description of sampling points, sampling train, analysis equipment, and test schedule.

C. Detailed description of the operating conditions of the affected process during testing, including operating rate (tons/hr) and the control measures being used.

D. Detailed data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.

E. Representative opacity data (6-minute average) measured during testing.

2.2.9 Operational Instrumentation

a. The Permittee shall install, operate and maintain systems to measure the pressure drop across each baghouse used to control affected units, other than bin vent filters and other similar filtration devices.

b. The Permittee shall maintain the records of the measurements made by these systems and records of maintenance and operational activity associated with the systems.

2.2.10 Inspections

a. i. The Permittee shall conduct inspections of affected units on at least a monthly basis with personnel who are not directly responsible for the day-to-day operation of these units, for the specific purpose of verifying that the measures identified in the operating program and other measures required to control emissions from affected units are being properly implemented.

ii. These inspections shall include observation for the presence of visible emissions, performed in accordance with USEPA Method 22, from buildings in which affected units are located and from units from which the Permittee has elected to demonstrate no visible emissions.

b. The Permittee shall perform detailed inspections of the dust collection equipment for affected units while the units are out of service, with an initial inspection performed before any maintenance and repair activities are conducted during the period the unit is out of service and a follow-up inspection performed after any such activities are completed. These inspections shall be conducted at least every 15 months, except for control devices for units handling dry fly ash, which shall be inspected at least every 9 months.

2.2.11 Recordkeeping

a. For affected units that are subject to NSPS, the Permittee shall fulfill applicable recordkeeping requirements of the NSPS, 40 CFR 60.7 and 60.676 (applicable to units handling limestone).

b. The Permittee shall maintain file(s), which shall be kept current, that contain:

i. The maximum operating capacity of each affected unit or group of related units (tons/hour).

ii. A. For the baghouses and other filter devices associated with affected units, design specifications for each device (type of unit, maximum design exhaust flow (acfm and scfm), filter area, type of filter cleaning, performance guarantee for particulate exhaust loading in gr/scf, etc.), the manufacturer's recommended operating and maintenance procedures for the device, and design specification for the filter material in each device (type of material, surface treatment(s) applied to material, weight, performance guarantee, warranty provisions, etc.).

B. For each baghouse, the normal range of pressure drop across the device and the minimum and maximum safe pressure drop for the device, with supporting documentation.

iii. For affected units that are not controlled with baghouses or other filter-type devices, a detailed description of the work practices used to control emissions of PM pursuant to Condition 2.2.6(c). These control measures are referred to as the "established control measures" in this subsection of this permit.

iv. The designated PM emission rate, in pounds/hour and tons/year, from affected units, either individually or grouped by related units, with supporting calculations and documentation, including detailed documentation for the level of emissions control achieved through the work practices that are used to control PM emissions. For each category of affected unit (e.g., coal handling), the sum of these emission rates shall not exceed the totals in Table 1-B for the category of affected unit. (See also Condition 2.2.7.)

v. A demonstration that confirms that the above established control measures are sufficient to assure compliance with the above emissions rates and, for units to which it applies, Condition 2.2.4(c), at the maximum process weight rate at which each affected unit can be operated (tons/hour), with supporting emission calculations and documentation for the emission factors and the efficiency of the control measures being relied upon by the Permittee. Except as addressed by Condition 2.2.11(a)(ii) or testing of PM emissions from an affected unit is conducted in accordance with Condition 2.2.7, this demonstration shall be developed using emission factors for uncontrolled PM emissions, efficiency of control measures, and controlled PM emissions published by USEPA.

c. The Permittee shall keep records for the amount of bulk materials associated with the operation of the affected boiler received by or loaded out from the source by category or type of material (tons/month).

d. i. The Permittee shall keep inspection and maintenance log(s) for the control measures associated with the affected units, including buildings and enclosures, dust suppression systems and control devices.

ii. These records shall include the following information for the inspections required by Condition 2.2.10(a):

A. Date and time the inspection was performed and name(s) of inspection personnel.

B. The observed condition of the control measures for each affected unit, including the presence of any visible emissions.

C. A description of any maintenance or repair associated with established control measures that is recommended as a result of the inspection and a review of outstanding recommendations for maintenance or repair from previous inspection(s), i.e., whether recommended action has been taken, is yet to be performed or no longer appears to be required.

D. A summary of the observed implementation or status of actual control measures, as compared to the established control measures.

iii. These records shall include the following information for the inspections required by Condition 2.2.10(b):

A. Date and time the inspection was performed and name(s) of inspection personnel.

B. The observed condition of the dust collection equipment.

C. A summary of the maintenance and repair that is to be or was conducted on the equipment.

D. A description of any maintenance or repair that is recommended as a result of the inspection and a review of outstanding recommendations for maintenance or repair from previous inspection(s), i.e., whether recommended action has been taken, is yet to be performed or no longer appears to be required.

E. A summary of the observed condition of the equipment as related to its ability to reliably and effectively control emissions.

e. The Permittee shall maintain records of the following for each incident when any affected unit operated without the control measures required by Condition 2.2 or 2.6(b) or (c):

i. The date of the incident and identification of the unit(s) that were involved.

ii. A description of the incident, including: the established control measures that were not present or implemented; the established control measures that were present, if any; and other control measures or mitigation measures that were implemented, if any.

iii. The time at and means by which the incident was identified, e.g., scheduled inspection or observation by operating personnel.

iv. Operational data for the incident, e.g., the measured pressure drop of a baghouse, if the pressure drop of the

baghouse, as measured pursuant to Condition 2.2.9, deviated outside the levels set as good air pollution control practices.

v. The corrective action(s) taken and the length of time after the incident was identified that the unit(s) continued to operate before established control measures were in place or the operations were shutdown (to resume operation only after established control measures were in place) and, if this time was more than one hour, an explanation why this time was not shorter, including a detailed description of any mitigation measures that were implemented during the incident.

vi. The estimated total duration of the incident, i.e., the total length of time that the unit(s) ran without established control measures and the estimated amount of material processed during the incident.

vii. A discussion of the probable cause of the incident and any preventative measures taken.

viii. An estimate of any additional emissions of PM (pounds) above the PM emissions associated with normal operation that resulted from the incident, if any, with supporting calculations.

ix. A discussion whether any applicable emission standard, as listed in Condition 2.2.2, 2.2.3, or 2.2.4 or any applicable emission rate, as identified in the records pursuant to Condition 2.2.10(b), may have been violated during the incident, with an estimate of the amount of any excess PM emissions (lbs) and supporting explanation.

f. The Permittee shall maintain the following records for the emissions of the affected units:

i. A file containing the standard emission factors used by the Permittee to determine PM emissions from the units, with supporting documentation.

ii. Records of PM emissions based on operating data for the unit(s) and appropriate emission factors, with supporting documentation and calculations.

g. The Permittee shall keep records for all opacity measurements made in accordance with USEPA Method 9 for affected units that it conducts or that are conducted at its behest by individuals who are qualified to make such observations. For each occasion on which such measurements are made, these records shall include the formal report for the measurements if conducted pursuant to Condition 2.2.7-1 or 2.2.7-2, or otherwise the identity of the observer, a description of the measurements that were made, the

operating condition of the affected unit, the observed opacity, and copies of the raw data sheets for the measurements.

2.2.12 Notifications

The Permittee shall notify the Illinois EPA within 30 days of deviations from applicable emission standards or operating requirements for the affected units that continue* for more than 24 hours. These notifications shall include the information specified by Condition 3.5.

* For this purpose, time shall be measured from the start of a particular event. The absence of a deviation for a short period shall not be considered to end the event if the deviation resumes. In such circumstances, the event shall be considered to continue until corrective actions are taken so that the deviation ceases or the Permittee takes the affected unit out of service for repairs.

2.2.13 Reporting Requirements

a. The Permittee shall submit quarterly reports to the Illinois EPA for all deviations from emission standards, including standards for visible emissions and opacity, and operating requirements set by this permit. These notifications shall include the information specified by Condition 3.5.

b. These reports shall also address any deviations from applicable compliance procedures established by this permit for affected units.

2.2.14 Operational Flexibility

The Permittee is authorized, as follows, to construct and operate affected units that differ from those described in the application in certain respects without obtaining further approval by the Illinois EPA. This condition does not affect the Permittee’s obligation to comply with all applicable requirements for affected units:

a. This authorization only extends to changes that result from the detailed design of the project and any refinements to that design of the affected units that occur during construction and the initial operation of the affected facility.

b. With respect to air quality impacts, these changes shall generally act to improve dispersion and reduce impacts, as emissions from individual units are lowered, units are moved apart or away from the fence line, stack heights are increased, and heights of nearby structures are reduced.

c. The Permittee shall notify the Illinois EPA prior to proceeding with any changes. In this notification, the Permittee shall describe the proposed changes and explain why the proposed

changes will act to reduce impacts, with detailed supporting documentation.

d. Upon written request by the Illinois EPA, the Permittee shall promptly have air quality dispersion modeling performed to demonstrate that the overall effect of the changes is to reduce air quality impacts, so that impacts from affected units remain at or below those predicted by the air quality analysis accompanying the application.

CONDITION 2.3: UNIT-SPECIFIC CONDITIONS FOR COOLING TOWER

2.3.1 Description of Emission Unit

The affected unit for the purpose of this unit-specific condition is a cooling tower associated with the steam cycle for the affected boiler. The cooling tower is a source of particulate because of mineral material present in the water, which is emitted to the atmosphere due to water droplets that escape from the cooling tower or completely evaporate. The emissions of PM are controlled by drift eliminators, which collect water droplets entrained in the air exhausted from the cooling tower.

2.3.2 Control Technology Determination

The affected unit shall be equipped, operated, and maintained with drift eliminators designed to limit the loss of water droplets from the unit to not more than 0.0005 percent of the circulating water flow.

2.3.3 Applicable Federal Emission Standards

None

2.3.4 Applicable State Emission Standards

a. The emission of smoke or other PM from the affected unit shall not have an opacity greater than 30 percent, except as allowed by 35 IAC 212.124. Compliance with this limit shall be determined by 6-minute averages of opacity measurements in accordance with USEPA Reference Method 9. [35 IAC 212.109 and 212.123(a)]

b. With respect to emissions of fugitive PM, the affected unit shall comply with 35 IAC 212.301, which provides that emissions of fugitive PM shall not be visible from any process, including any material handling or storage activity, when looking generally toward the zenith at a point beyond the property line of the source, except when the wind speed exceeds 25 miles per hour, as provided by 35 IAC 212.314.

c. The emissions of PM from the affected unit shall comply with the applicable limit pursuant to 35 IAC 212.321.

2.3.5 Applicability of Other Regulations

None

2.3.6 Operating Requirements

a. Chromium-based water treatment chemicals, as defined in 40 CFR 63.401, shall not be used in the affected unit.

b. i. The Permittee shall equip the affected unit with appropriate features, such as louvered heating coils

designed to heat tower plenum air as required, to enable it to be operated without a significant contribution to fogging and icing on offsite roadways during periods when fogging or icing are present in the area or weather conditions are conducive to fogging or icing.

ii. Notwithstanding the above, the Permittee need not include such features in the affected unit if it demonstrates by appropriate analysis, as approved in writing by the Illinois EPA, that the cooling tower will be sited and designed and can be operated such that additional features are not needed to prevent a significant contribution to fogging and icing on offsite roadways.

c. The Permittee shall operate and maintain the affected unit, including the drift eliminators, in a manner consistent with good air pollution control practices for minimizing emissions.

d. The Permittee shall operate and maintain the affected unit in accordance with written operating procedures, which procedures shall be kept current. These procedures shall address the practices that will be followed as good air pollution control practices and the actions that will be followed to prevent a significant contribution to icing and fogging on offsite roadways.

2.3.7 Emission Limitations

The total annual emissions of PM from the affected unit shall not exceed 9.64 tons/year, as determined by appropriate emission factors and engineering calculations.

2.3.8 Emission Testing

None

2.3.9 Work Practices

The Permittee shall maintain the drift eliminators in the affected unit in a manner consistent with good air pollution control practices for minimizing emissions.

2.3.10 Operational Measurements

a. The Permittee shall sample and analyze the water being circulated in the affected unit on at least a monthly basis for the total dissolved solids content. Measurements of the total dissolved solids content in the wastewater discharge associated with the affected unit, as required by a National Pollution Discharge Elimination System permit, may be used to satisfy this requirement if the effluent has not been diluted or otherwise treated in a manner that would significantly reduce its total dissolved solids content.

b. Upon written request by the Illinois EPA, the Permittee shall promptly have the water circulating in the affected unit sampled and analyzed for the presence of hexavalent chromium in accordance with the procedures of 40 CFR 63.404(a) and (b).

2.3.11 Records

a. The Permittee shall keep a file that contains:

i. The design loss specification for the drift eliminators installed in the affected unit.

ii. The suppliers' recommended procedures for inspection and maintenance of the drift eliminators.

iii. The operating factors, if any, used to determine the amount of water circulated in the affected unit or the PM emissions from the affected unit, with supporting documentation.

iv. Copies of the Material Safety Data Sheets or other comparable information from the suppliers for the various water treatment chemicals that are added to the water circulated in the affected unit.

b. The Permittee shall keep the following operating records for the affected unit:

i. The amount of water circulated in the affected unit, gallons/month. As an alternative to direct data for water flow, these records may contain other relevant operating data for the unit (e.g., water flow to the unit) from which the amount of water circulated in the unit may be reasonably determined.

ii. Each occasion when the Permittee took action to prevent a significant contribution to fogging or icing from the affected unit, including the date and duration, the action or actions that were taken, the weather conditions that triggered such actions, and the weather conditions when such actions were terminated.

c. The Permittee shall keep inspection and maintenance logs for the drift eliminators installed in the affected unit.

d. The Permittee shall maintain records for the PM emissions of the affected unit based on the above records, the measurements required by Condition 2.3.10(a), and appropriate USEPA emission estimation methodology and emission factors, with supporting calculation.

2.3.12 Notifications

The Permittee shall notify the Illinois EPA within 30 days of deviations from applicable requirements that are not addressed by the regular reporting required by Condition 2.3.13. These notifications shall include the information specified by Condition 3.5.

2.3.13 Reporting

If the cooling tower is equipped with features to address fogging and icing, as addressed by Condition 2.3.6(b), the Permittee shall submit quarterly reports to the Illinois EPA summarizing the records required by Condition 2.3.11(b)(ii) and identifying any deviation from established practices for the use of such features.

CONDITION 2.4: UNIT-SPECIFIC CONDITIONS FOR ROADWAYS AND OTHER OPEN AREAS

2.4.1 Description of Emission Units

The affected units for the purpose of these unit-specific conditions are roadways, parking areas, and other open areas associated with the operation of the affected boiler, which may be sources of fugitive particulate due to vehicle traffic or wind blown dust.

2.4.2 Control Technology Determination

a. i. Good air pollution control practices shall be implemented to minimize and significantly reduce nuisance dust from affected units. After construction of the affected boiler is complete, these practices shall provide for pavement on all regularly traveled roads and treatment (flushing, vacuuming, dust suppressant application, etc.) of roadways and areas that are routinely subject to vehicle traffic for very effective and effective control of dust, respectively (nominal 90 percent control for paved roads and areas).

ii. For this purpose, roads that serve any new office building, new employee parking areas or are used on a daily basis by operating and maintenance personnel for the affected boiler in the course of their typical duties, roads that experience heavy use during regularly occurring maintenance of the affected boiler during the course of a year, shall all be considered to be subject to regular travel and are required to be paved. Regularly traveled roads shall be considered to be subject to routine vehicle traffic except as they are used primarily for periodic maintenance and are currently inactive or as traffic has been temporarily blocked off. Other roads shall be considered to be routinely traveled if activities are occurring such that they are experiencing significant vehicle traffic.

b. The handling of material collected from any affected unit by sweeping or vacuuming trucks shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods to control PM emissions.

2.4.3 Applicable Federal Emission Standards

None

2.4.4 Applicable State Emission Standards

a. Affected units shall comply with 35 IAC 212.301, which provides that emissions of fugitive particulate matter shall not be visible from any process, including any material handling or storage activity, when looking generally toward the zenith at a point beyond the property line of the source, except when the wind speed is greater than 25 miles per hour, as provided by 35 IAC 212.314.

2.4.5 Applicability of Other Regulations

None

2.4.6 Operational and Production Limits and Work Practices

a. The Permittee shall carry out control of fugitive particulate emissions from affected units in accordance with a written operating program describing the measures being implemented in accordance with Conditions 2.4.2 and 2.4.4 to control emissions at each unit with the potential to generate significant quantities of such emissions, which program shall be kept current.

   i. This program shall include maps or diagrams indicating the location of affected units with the potential to generate significant quantities of fugitive particulate, with description of the unit (length, width, surface material, etc.) and volume and nature of expected vehicle traffic, or other activity on such unit, and an identification of any roadways that are not considered routinely traveled, with justification.

   ii. This program shall include a detailed description of the emissions control technique (e.g., vacuum truck, water spray, surfactant spray, water flushing, dust suppressant application, or sweeping) for the affected unit, including: typical application rate; type and concentration of additives; normal frequency with which measures would be implemented; circumstances, in which the measure would not be implemented, e.g., recent precipitation; triggers for additional control, e.g., observation of 10 percent opacity; and calculated control efficiency for PM emissions.

b. The Permittee shall submit copies of this operating program to the Illinois EPA for review as follows:

   i. A program addressing the construction of the affected boiler and associated facilities shall be submitted within 30 days of beginning actual construction of this project.

   ii. A program addressing the operation of the affected boiler and associated facilities shall be submitted within 90 days of initial start up of the affected boiler.

   iii. Significant amendments to the program by the Permittee shall be submitted within 30 days of the date that the amendment is made.

c. A revised operating program shall be submitted to the Illinois EPA for review within 90 days of a request from the Illinois EPA

for revision to address observed deficiencies in control of fugitive particulate emissions.

d. The Permittee shall conduct inspections of affected units on at least a weekly basis during construction of the affected boiler and associated facilities and on a monthly basis thereafter with personnel not directly responsible for the day-to-day implementation of the fugitive dust control program, for the specific purpose of verifying that the measures identified in the operating program and other measures required to control emissions from affected units are being properly implemented.

2.4.7 Emission Limitations

The total annual emissions of PM from the affected units shall not exceed 6.0 tons/year, as determined by vehicle traffic and other operating data associated with operation of the affected boiler, appropriate emission factors, and engineering calculations.

2.4.8 Emission Testing

None

2.4.9 Operational Monitoring and Measurements

None

2.4.10 Emission Monitoring

None

2.4.11 Records

a. The Permittee shall keep a file that contains:

i. The operating factors, if any, used to determine the amount of activity associated with the affected units or the PM emissions from the affected units, with supporting documentation.

ii. The designated PM emission rate, in tons/year, from each category of emission unit (e.g., traffic associated with receiving of limestone), with supporting calculations and documentation. The sum of these rates shall not exceed the annual limit on emissions in Condition 2.4.7.

b. The Permittee shall maintain records documenting implementation of the operating program required by Condition 2.4.6, including:

i. For each treatment of an affected unit or units, the name and location of the affected unit(s), the date and time, and the identification of the truck(s) or treatment equipment used.

ii. For each application of water or chemical solution by truck: application rate of water or suppressant, frequency of each application, width of each application, total quantity of water or chemical used for each application and, for each application of chemical solution, the concentration and identity of the chemical.

iii. For application of physical or chemical control agents: the name of the agent, application rate and frequency, and total quantity of agent and, if diluted, percent of concentration, used each day.

iv. A log recording incidents when control measures were not used and incidents when additional control measures were used due to particular activities, including description, date, a statement of explanation, and expected duration of such circumstances.

c. The Permittee shall record any period during which an affected unit was not properly controlled as required by this permit, which records shall include at least the information specified by Condition 3.3 and an estimate of the additional PM emissions that resulted, if any, with supporting calculations.

d. The Permittee shall maintain records for the PM emissions of the affected units based on operating data for the affected boiler, the above records for the affected units including data for implementation of the operating program, and appropriate USEPA emission estimation methodology and emission factors, with supporting calculations.

2.4.12 Notifications

The Permittee shall notify the Illinois EPA within 30 days of deviations from applicable requirements for affected units that are not addressed by the regular reporting required below. These notifications shall include the information specified by General Condition 3.5.

2.4.13 Reporting

The Permittee shall submit quarterly reports to the Illinois EPA for affected units stating the following: the dates any necessary control measures were not implemented; a listing of those control measures; the reasons that the control measures were not implemented; and any corrective actions taken. This information includes, but is not limited to, those dates when controls were not applied based on a belief that application of such control measures would have been unreasonable given prevailing atmospheric conditions. This report shall be submitted to the Illinois EPA no later than 45 calendar days from the end of each calendar quarter.

SECTION 3: GENERAL PERMIT CONDITIONS

CONDITION 3.1: STANDARD CONDITIONS

Standard conditions for issuance of construction permits, attached hereto and incorporated herein by reference, shall apply to this boiler addition project, unless superseded by other conditions in the permit. (SEE ALSO ATTACHMENT 3)

CONDITION 3.2: GENERAL REQUIREMENTS FOR EMISSION TESTING

a. i. If submittal of a test plan is required for emission testing required by this permit, the test plan shall be submitted to the Illinois EPA for review at least 60 days prior to the actual date of testing. This plan shall describe the specific procedures for testing and shall, at a minimum, include the following information:

A. The person(s) who will be performing sampling and analysis and their experience with similar tests.

B. The specific conditions, e.g., operating rate and control device operating conditions, under which testing shall be performed including a discussion of why these conditions will be representative and the means by which the operating parameters will be determined.

C. The specific determinations of emissions that are intended to be made, including sampling or monitoring locations. As part of this plan, the Permittee may set forth a strategy for performing emission testing in the normal load range of the boiler.

D. The test method(s) that will be used, with the specific analysis method if the method can be used with different analysis methods.

ii. As provided by 35 IAC 283.220(d), the Permittee need not submit a test plan for subsequent emissions testing that will be conducted in accordance with the procedures used for previous tests accepted by the Illinois EPA or the previous test plan submitted to and approved by the Illinois EPA, provided that the Permittee's notification for testing, as required below, contains the information specified by 35 IAC 283.220(d)(1)(A), (B) and (C).

b. i. The Permittee shall notify the Illinois EPA prior to performing emissions testing required by this permit to enable the Illinois EPA to observe the tests. Notification for the expected date of testing shall be submitted a minimum of 30 days* prior to the expected date, and identify the testing that will be performed. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days* prior to the actual date of testing.

* For a particular test, the Illinois EPA may at its discretion accept shorter advance notification provided that it does not interfere with the Illinois EPA's ability to observe testing.

ii. This notification shall also identify the parties that will be performing testing and the set or sets of operating conditions under which testing will be performed.

c. The Permittee shall submit three copies of the Final Reports for emission testing required by this permit to the Illinois EPA within 30 days after the test results are compiled and finalized but not later than 90 days after the date of testing. At a minimum, the Final Report for testing shall contain:

i. General information, i.e., testing personnel and test dates;

ii. A summary of results;

iii. Description of test method(s), including a description of sampling points, sampling train, analysis equipment, and test schedule;

iv. The operating conditions of the emission unit and associated control devices during testing; and

v. Data and calculations, including copies of all raw data sheets and records of laboratory analysis, sample calculations, and data on equipment calibration.

CONDITION 3.3: REQUIREMENTS FOR RECORDS FOR DEVIATIONS

Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the source, records for deviations from applicable permit requirements shall include at least the following information: the date, time and estimated duration of the event; a description of the event; the manner in which the event was identified, if not readily apparent; the probable cause for deviation, if known, including a description of any equipment malfunction/breakdown associated with the event; information on the magnitude of the deviation, including actual emissions or performance in terms of the applicable standard if measured or readily estimated; confirmation that standard procedures were followed or a description of any event-specific corrective actions taken; and a description of any preventative measures taken to prevent future occurrences, if appropriate.

CONDITION 3.4: RETENTION AND AVAILABILITY OF RECORDS

Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the source, all records, including written procedures and logs, required by this permit shall be kept at a readily accessible location at the affected facility and be available for inspection

and copying by the Illinois EPA and shall be retained for at least five years.

CONDITION 3.5: NOTIFICATION AND REPORTING OF DEVIATIONS

Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the source, notifications and reports for deviations from applicable permit requirements shall include at least the following information: the date and time of the event, a description of the event, information on the magnitude of the deviation, a description of the corrective measures taken, and a description of any preventative measures taken to prevent future occurrences.

CONDITION 3.6: GENERAL REQUIREMENTS FOR NOTIFICATION AND REPORTS

a. i. Unless otherwise specified in the particular provision of this permit, in a subsequent CAAPP Permit for the source, or in the written instructions distributed by the Illinois EPA for particular reports, reports and notifications shall be sent to the Illinois EPA – Air Compliance Section with a copy sent to the Illinois EPA – Air Regional Field Office.

ii. As of the date of issuance of this permit, the addresses of the office that should generally be utilized for the submittal of reports and notifications are as follows:

A. Illinois EPA – Air Compliance Section

Illinois Environmental Protection Agency
Bureau of Air
Compliance and Enforcement Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

B. Illinois EPA – Air Regional Field Office

Illinois Environmental Protection Agency
Division of Air Pollution Control
5415 North University
Peoria, Illinois 61614

C. USEPA Region 5 – Air Branch

USEPA (AE-17J)
Air and Radiation Division
77 West Jackson Boulevard
Chicago, Illinois 60604

b. The Permittee shall submit Annual Emission Reports to the Illinois EPA in accordance with 35 IAC Part 254. For hazardous air pollutants, these reports shall include emissions information for at least the following pollutants: hydrogen chloride, hydrogen fluoride, mercury, arsenic, beryllium, cadmium, chromium, lead, manganese, and nickel.

ATTACHMENT 1: EMISSION LIMITATIONS

Table 1-A: Emission Limitations for the Affected Boiler

Pollutant	Pounds/Million Btu[a]	Pounds/Hour[b]	Tons/Year[c]
CO	0.120[d]	293, 3-Hour Average	1,281
PM Filterable[e]	0.015	36.6, 3-Hour Average	160
PM Total[f]	0.035	85.3, 3-Hour Average	374
Sulfuric Acid Mist	0.0050	12.2, 3-Hour Average	53
SO_2	0.20	490, 30-Day Average	2,135
NO_x	0.10	245, 30-Day Average	1,068
VOM	0.0036	8.80, 3-Hour Average	38.4
Fluorides[g]	---	0.60, 3-Hour Average	2.6
Lead	---	0.050, 3-Hour Average	0.22
Hydrogen Chloride	---	17.5, 3-Hour Average[h]	76.5
Mercury	---	0.00525, 3-Hour Average[h]	0.023

Notes:

a. Emission limitations expressed in pound/million Btu heat input are provided for informational purposes. They reflect requirements for CO, PM and sulfuric acid mist emissions in Condition 2.1.2(b), the requirement for VOM emissions in Condition 2.1.2(d)(ii)(B), and requirements for SO2 and NO_x emissions in Condition 2.1.7(b).

b. Compliance with limitations expressed in pound/hour shall be based on 30-day rolling averages for NO_x and SO_2 and 3-hour block averages for other pollutants, except that compliance with the CO limitation shall be based on 24-hour block averages if a continuous emission monitoring system for CO is operated pursuant to Condition 2.1.9-3.

c. These limitations address all emissions from the boiler, including emissions that occur during periods of startup, shutdown and malfunction, as addressed by Condition 2.1.6.

d. This limitation does not apply for startup or shutdown of the affected boiler.

e. These limitations address filterable PM. All PM measured by USEPA Method 5 shall be considered filterable PM unless PM emissions are tested by USEPA Method 201 or 201A. These limitations do not address condensable particulate.

f. These PM limitations address both filterable and condensable particulate.

g. The limitations for fluorides are expressed in terms of hydrogen fluoride.

h. This limitation does not apply during periods of startup, shutdown and malfunction, as addressed by Condition 2.1.6.

Table 1-B: Limitations for PM Emissions from Material Handling Operations

Operation	Limitations	
	Pounds/Hour	Tons/Year
Coal Handling	-	4.42
Limestone Handling	-	0.16
Gypsum Handling	-	0.40
Ash Handling	0.559	2.45
Storage Piles[a]	-	4.22
Total	-	11.80

Notes

a. The limitation for storage piles addresses pile maintenance and wind erosion from the various storage piles.

ATTACMENT 2

Table 2-A Potential Emissions of the Project for PSD Pollutants (Tons/Year)

Unit	Pollutant							
	PM	CO	SO_2	NO_x	VOM	Sulfuric Acid Mist	Fluorides	Lead
Boiler	374	1282	2135	1068	38.4	53	2.6	0.22
Material Handling	11.65	-	-	-	-	-	-	-
Cooling Tower	9.64	-	-	-	-	-	-	-
Roadways	6.02	-	-	-	-	-	-	-
Emergency Engines	0.05	0.38	0.04	2.0	0.05	-	-	-
Total	401	1282	2135	1070	38.5	53	2.6	0.22

Table 2-B Summary of Net Changes in Emissions for PSD Pollutants (Tons/Year)

Pollutant	Project Emissions	Contemporaneous Emissions Increases and Decreases			Net Change in Emissions	Major Modification Threshold
		Decrease: Shut Down of Lakeside Units[a]	Increases:			
			New Diesel Engines[b]	Proposed Spray Dry System[c]		
NO_x	1070	1,262	39.4	14.0	- 138	40
SO_2	2135	7,741	0.8	0.1	- 5605	40
CO	1282	32.1	4.7	21.1	1276	100
VOM	38	7.03	1.0	11.6	43.6	40
PM/PM_{10}[d]	187/401	6.36	1.1	13.7	195/409	25/15
Sulf. Acid Mist	53	32.2	-	-	20.8	7
Fluorides[e]	2.6	[(f)]	-	-	2.6	3.0
Lead	0.22	[(f)]	-	-	0.22	0.60

Notes:

a. The emission decrease reflects actual emissions from shutdown of the existing Lakeside Units (Units 7 and 8), as addressed by this permit.

b. Permitted emissions of three diesel engines, as installed pursuant to Construction Permit 01070019.

c. Permitted emissions of the proposed spray dryer system, as currently requested by CWLP in Construction Permit Application 05030023.

d. Net change evaluated in terms of filterable PM/ PM_{10}

e. Emissions of fluorides in terms of hydrogen fluorides.

f. CWLP did not quantify decreases in emissions of fluorides or lead from the shutdown of the Lakeside Units.

ATTACHMENT 3: STANDARD PERMIT CONDITIONS

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits, which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Illinois EPA and a supplemental written permit issued.

4. The Permittee shall allow any duly authorized agent of the Illinois EPA upon the presentation of credentials, at reasonable times:

    a. To enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,

    b. To have access to and to copy any records required to be kept under the terms and conditions of this permit,

    c. To inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,

    d. To obtain and remove samples of any discharge or emissions of pollutants, and

    e. To enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. Shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located,

   b. Does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities.

   c. Does not release the Permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations.

   d. Does not take into consideration or attest to the structural stability of any units or parts of the project, and

   e. In no manner implies or suggests that the Illinois EPA (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Illinois EPA before the equipment covered by this permit is placed into operation.

b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.

7. The Illinois EPA may file a complaint with the Board for modification, suspension or revocation of a permit.

   a. Upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed, or

   b. Upon finding that any standard or special conditions have been violated, or

   c. Upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

ATTACHMENT 4:

DETERMINING THE SORBENT INJECTION RATE FOR
CONTROL OF MERCURY EMISSIONS FROM THE AFFECTED BOILER

1. Purpose

This attachment contains the requirements for the sorbent injection system for control of mercury emissions from the affected boiler if the boiler is subject to Condition 2.1.2(c)(i)(A) and the Permittee elects to comply with Permit Option B, i.e., use of a control system for mercury emissions. Among other matters, this attachment defines the process by which the applicable injection rate of sorbent for such system will be determined.

2. General Requirements

a. The sorbent injection system, including the selected sorbent(s) shall be designed, constructed and maintained in accordance with good air pollution control practices. For this purpose, sorbent(s) shall be used, such as treated activated carbon, that have been demonstrated to have high levels of effectiveness in similar boiler/control device applications (or pilot tests on the affected boiler). The system shall have ample capacity to handle and inject such sorbent(s), and the location, number and type of injection ports designed for effective distribution of sorbent in the flue gas. The Permittee shall submit a demonstration to the Illinois EPA showing that the proposed sorbent injection system meets these criteria, for review and approval by the Illinois EPA.

b. i. The sorbent injection system shall each be operated to inject sorbent at a rate, in lb/million Btu or lb/scf of flue gas, that is at least at the rate that has been determined to represent the maximum practicable degree of removal for mercury, as previously established pursuant to an evaluation of the effectiveness of the sorbent for control of mercury conducted in accordance with Condition 3 or 4, below. This rate shall be maintained while coal is being fired in the boiler, including periods of startup and shutdown of the boiler.

ii. Notwithstanding the above, for purposes of evaluating the performance of sorbent(s), the Permittee may operate without the sorbent injection system in service or at low rates of sorbent injection as necessary to (1) to prepare for the formal evaluation of a sorbent, i.e., flushing residual sorbent from the boiler and control train, and (2) determine the “performance curve”, provided that the number and duration of such operation is minimized to the extent reasonably necessary for this purpose. (Refer to Paragraph 5(a), below, for the definition of the performance curve.) The Permittee may also conduct pilot tests to confirm suitability of a

potential sorbent prior to a detailed evaluation, with prior notification to the Illinois EPA describing such tests and the available data indicating the suitability of the sorbent material for effective control of mercury.

3. Initial Evaluation of the Effectiveness of Sorbent Injection and Establishment of the Optimum Sorbent Injection Rate

a. The Permittee shall perform an evaluation of the effectiveness of injecting sorbent(s) for control of mercury in accordance with a plan submitted to the Illinois EPA for review and comment.

i. The Permittee shall submit the initial plan to the Illinois EPA no later than 180 days after initial start-up of a boiler.

ii. The Permittee shall promptly begin this evaluation after the boiler demonstrates compliance with all applicable short-term emission limits as shown by emission testing and monitoring. At this time, the Permittee shall submit an update to the plan that describes its findings with respect to control of mercury emissions during the shakedown of the boiler, which highlights possible areas of interest for this evaluation.

iii. This evaluation shall be completed and a detailed written report submitted to the Illinois EPA within two years after the initial startup of the boiler. This report shall include proposed injection rate limit(s) for mercury emissions. (See Condition 3(d)(i), below.)

iv. This deadline may be extended by the Illinois EPA for an additional year if the Permittee submits an interim report (1) demonstrating the need for additional data to effectively evaluate sorbent injection and (2) includes an interim limit for mercury injection that provides effective control of mercury.

b. i. If the Permittee is conducting monitoring for mercury emissions with a continuous method, the plan shall provide for systematic review of mercury emissions as related to variation in operation of the boiler, within the normal range of boiler operation, including the effect of (1) boiler load and combustion settings, including excess oxygen, (2) operating data for the SCR system, including the level of uncontrolled NO_x before the SCR, as predicted from boiler operating data, (3) operating data for the scrubber, including pH of the scrubbant, and (4) operating data for the wet WESP. As an alternative to reliance on the measurements from a continuous monitoring system, the Permittee may also supplement its monitoring with semi-continuous monitoring, as provided below.

ii. If the Permittee is conducting monitoring for mercury emissions with a semi-continuous method, the sampling periods shall be of an appropriate duration to cover a representative selection of operation of the boiler.

c. In conjunction with such measurements of mercury emissions, the Permittee shall sample and analyze the fuel supply to the boiler so that representative data for the mercury content of the fuel supply is available that correlates with emission measurements.

d. i. Unless the Permittee elects to conduct a supplementary investigation, as provided below, the maximum practicable degree of removal shall be injection of sorbent at a rate that is twice the rate at the "transition point" from the performance curve. (Refer to Paragraph 5(b), below, for the definition of the transition point.) The sorbent injection system shall be operated at this rate.

ii. The Permittee may elect to conduct a supplemental investigation of the effectiveness of injection of sorbent(s) to determine whether effective control of mercury, as generally required, is achieved with lower (or higher) injection rates considering the operating rate or other relevant operating parameters of the boiler or control train, excluding periods of startup and shutdown of the boiler. For this purpose, the Permittee shall conduct additional measurements and develop additional performance curves for the control of mercury emissions for the boiler under such operating conditions. In the report for the evaluation, the Permittee shall explain why such operating conditions affect the control of mercury emissions, provide the criteria for identification of such operating conditions, and identify the rates at which the sorbent injection system must be operated during such conditions, determined as twice the rate at the "transition point" on the applicable performance curve.

4. Subsequent Evaluation of the Effectiveness of Sorbent Injection and Adjustment of the Optimum Sorbent Injection Rate

a. The Permittee shall repeat the evaluation described in Condition 3, above, in the following circumstances:

i. If the initial evaluation of sorbent injection does not demonstrate that 90 percent or more overall control of mercury will be achieved, a new evaluation shall be commenced two years after the initial evaluation was completed.

ii. If the Permittee undertakes significant changes to the mercury control system, e.g., use of a different sorbent or changes in the location or type of injection ports, at the conclusion of such changes.

iii. If the Permittee undertakes significant changes to other devices in the control train, e.g., use of a different catalyst in the SCR or changes in the chemistry of the scrubber which would generally act to reduce the effectiveness of those devices in controlling or facilitating the control of mercury emissions, at the conclusion of such changes.

iv. If requested by the Illinois EPA for purposes of periodic confirmation of the effectiveness of sorbent injection, which request shall not be made more than once every five years.

v. If the Permittee elects to perform such evaluation, provided, however that the Permittee shall explain why such an evaluation is being undertaken if it is less than two years after completion of the last evaluation.

b. For the purpose of subsequent evaluation, the plan shall be submitted to the Illinois EPA for review and approval at least 45 days before undertaking changes that trigger the need to perform such an evaluation and the evaluation shall be completed in one year, with opportunity for a 6-month extension.

c. As a subsequent evaluation reassesses the continuing operation of the boiler or addresses the future operation of the boiler, the results of the evaluation shall supersede the results of the preceding evaluation and thereafter govern the operation of the sorbent injection system. For example, if the subsequent evaluation was performed for a new sorbent material and the boiler continue to be operated with such sorbent, operation shall be governed by the results of the subsequent evaluation. If the new sorbent will not continue to be used, operation shall be governed by the results of the preceding evaluation for the sorbent material that will be used.

5. Definition of the Term "Performance Curve" As Related to Sorbent Injection for Control of Mercury Emissions

The "performance curve" is a graphical representation of the effectiveness of a particular sorbent in controlling mercury emissions, comparing the effectiveness of control with increasing rates of sorbent injection.

A performance curve for injection of a particular sorbent material is established by conducting a series of tests under representative operating conditions of the boiler to measure mercury emissions at different rates of sorbent injection (typically starting from zero sorbent to high rates of sorbent injection). For the purpose of presenting data, mercury emissions and sorbent injection rates are expressed in terms of the heat input to the boiler, in million or trillion Btu. This accounts for any differences in the heat input during each test.

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